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Factors Governing Package Design

By EDWIN H. SCHEELE

Package Design Corporation

Constant improvement of public taste in design has resulted in a discrimination which has rapidly spread to all classes of merchandise and has gained sufficient momentum to cause manufacturers as well as retailers to feel this influence. This effect is evidenced by the present wave of "package consciousness." While no phase of production or merchandising entails more anxiety than the birth of a new package, it is astounding to learn how many manufacturers know little or nothing about the foundation to be laid before bringing a new package to the buying public. This is the reason why many new packages have not met with the manufacturer's expected degree of acceptance by the consumer.

Although cognizant of the major importance of the package as a sales factor, the manufacturer must be warned of the dangers that exist in the wrong approach to the design of a new package or the redesign of an old one. Regardless of the personal opinions of those to whom this subject is fairly new, the artistic appearance alone should not be the standard of judging the new package. To proceed without some knowledge of the factors governing package design is to invite trouble.

Any attempt to outline a concrete plan for every manufacturer to follow when bringing out a new package would only cause more trouble because each problem is sufficiently different to warrant individual study and recommendation. However, there are certain factors which should be considered before proceeding with the actual work of executing the package design which must commence with the actual product, its manufacture and its use until the package is empty. The package should be planned with regard to its specific duty as well as the use of material, shape, size, color and design to express the product in terms that will be understood by the consumer. Thus, the appropriate package is the natural sequence of the research and creative efforts preceding and determining its design. It is the purpose of this article to present a brief outline of package design factors which may serve merely as a basis for approaching a package design problem, establishing the objective and developing the vehicle for its desired accomplishment.

Consumer Preferences, Marketing Methods and Merchandising Ideas

1. If the package is not for a new product but is a redesign of an old package, read the following twice: "Change should never be considered an end in itself." The value of a change in package design as a sales stimulant does not exist in the element of change as such, except in certain seasonal specialty or novelty merchandise fields. Unless one has a definite reason for changing a package design, leave it alone.

(A) Careful planning and tests to discover consumer preferences will often aid in determining whether to change the package or not.

(B) For the new product, plan the package carefully to insure it against all possible mistakes in design, utility and competition in display. It is the products' personality, a message to the consumer and therefore must be in harmony with the product in the consumer's language.

(C) Among some of the major reasons for a change in package design are:

To establish family resemblance to encourage group purchases, or to create harmony in a line through the borrowing of good-will from certain leaders for newer additions. (Selling a newcomer on an old-timer's reputation.)

Improvement in construction to facilitate ease of use by consumers.

To conform with new or changed buying habits such as new units of sale.

To widen the market to include new classes of retail outlets.

New uses for the product conforming with modern modes of living or marketing a staple as a gift item.

A radical improvement in the manufacture and refinement of the product to stop or beat competition.

To use the package as the keynote for a new intense and dominating advertising campaign especially where a product has not been advertised extensively for a period of years.

To intensify present package personality by a process of simplification and improvement of design balance and color harmony.

To conform with a change in merchandising such as the enlargement of a line or the increase of retail sales price, new outlets, etc.

2. *Potential Market.* Will the product be distributed to the masses? Is it for foreign and domestic use or national distribution or local within a certain radius? A specialized market will require a different type package. The market one intends to reach is of real importance in designing the package. Good taste in design or style of a package is a matter of knowledge and not opinion. Study the market. Get the facts, principally the major sales points—those things that appeal to the consumer when redesigning a package. Improvement does not necessarily mean

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raising the level or refinement of appeal or trading up. If the package is used in factories or garages by men, do not make it look like a package for jewelry or vice versa. One should be careful that the package speaks to the contemplated market.

3. *Class of Outlets.* Consider merchandising practices and conditions existing in the class of retail outlets that will affect the design of the package. Will it sell in specialty shops, drug stores, hardware stores, grocery stores, or must the package fit into all types of stores? Do these merchants use packages for display purposes? If used in window display what are the usual window style practices of these merchants—feature windows or hodge podge? Do these merchants use open display methods; are self-service sales methods used; will the package be displayed from the shelves; do they place packages on their counters or are glass display cases used? The class of retail outlet and the method of distribution will also affect determination of the amount of protection required in the package construction.

Consult buyers, keen retailers and wholesale distributors for suggestions as to what questions customers are asking—what are their preferences or things they like about similar products, if any? Is there a trend to new price levels or is any other buying habit changing? What member of the family does the actual purchasing? These men should know public taste and often their comments will have an important bearing on package design. But do not ask them how your package should be designed or you will be surprised at the various "opinions" offered. Rather ask what is the leading brand in sales, the second best and what consumers say about these brands. In redesigning a package you will learn some pertinent facts about the value of your own brand name and trade mark.

4. *Competition.* Study the packages of competitors. Have they been making any changes, and how? What were reactions of distributors, retailers, consumers? How did the change affect point of sale cooperation and what percentage increase in sales, if any? Unearth all information that will indicate which are the permanent forward steps in package design as against that which relates to fashion or of the present mode. Be careful not to imitate competition. Your package should be as different as possible without leaving the category of your field.

Establishing the Package Design Objective

5. *Use.* When, where and how will the consumer use the package? Is it seasonal? Can a new use for the product be developed? Does the package remain in use until the contents are consumed or are the contents removed immediately after purchase? Must the package stand repeated use in the home, office or factory and will it be resealed after each use? Will the package be used in the boudoir, parlor, kitchen, bathroom, garage, store, travel, etc.? Will the package have a re-use value? These and many other factors regarding the use of the package must be considered from the consumer standpoint to ascertain what their habits are and how it will affect the design of the package. Is it or can it be used for gift purposes? The package may be used in combination with other related products with which it should harmonize. There may be some mechanical feature to incorporate to facilitate its use.

6. *Exploitation.* What kind of advertising will be used—point of sale, or general? How will it be featured? This is especially important in redesign work. If a package will meet the public only from a lower dark shelf in a grocery store, many elements of good package design must be sacrificed to increase display value so that it will gain attention. For the package cannot do the entire job of building sales without some support to bring it to the attention of the consumer. As a rule, the dealer will put new or redesigned packages to the front of his counter, store or whatever is his practice in order to study sales reaction. But this is often a temporary stimulus not to be depended on for consistent sales, and applies almost solely to low cost, low profit, slow moving staples, although to be remembered when designing packages for this class of merchandise.

7. *Primary Appeal.* Each product has at least one primary appeal that should be emphasized in the package design. Depending on the product, it should be determined whether the primary appeal to the consumer shall be one of economy; sanitation; comfort; utility; quality; health; luxury; pleasure; beauty, etc. If the product has two forms of appeal, decide which will be more important to the consumer for the primary appeal and make the other secondary to it.

8. *Style.* The new package should dominate in its field but caution should not be abandoned. Many factors previously determined will strongly influence the style of the package. To these must be added, when redesigning an old package, such design elements as have proven their sales value. These may be in the form of a color combination or a certain layout of detail proportions but more usually they will be a trade mark, title style, a predominant color, etc. Whether or not family resemblance is to be established or retained is another feature controlling to some extent the matter of style. Other considerations such as appropriateness of color to product, industrial tradition or fear of loss of established consumer acceptance for a slightly advertised product will have some bearing. It would be practically impossible to list an adequate number of conditions affecting and guiding the styling of a package in spite of the fact that this is one of the major problems in package design. For instance, in styling a line of various unrelated products it is sometimes possible to break these down into certain groups for the purpose of harmony and resemblance, but before this can be done, the containers to be used will often have to be standardized to

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some extent before any real progress can be made economically. Such things as general design trends are better left to one familiar with them. The study of competitors' and associated merchandise packages will be of some aid.

Production Factors of Package Design

9. *Cost per Package Allowable.* The work that has gone before and that to follow is usually charged to sales promotion. In determining the package cost, figures may have to be changed in the last analysis because often the advantages to be gained by some package idea costing slightly more than the original stipulation will justify the result. But some figure must be tentatively established to facilitate the work of designing the new package and keep these efforts within such limits as will prove economically sound. It will also eliminate much lost motion. There is no rule of percentage to retail sale or manufacturing cost. There are certain trade practices in each industry that will serve as a guide and much will depend on the relative importance of the package in making the retail sale. Quantity, protection, handling, etc., must be considered. One important fact to bear in mind is that not only packaging materials but also a consideration of the various processes of packaging, automatic or hand, will have to be kept in mind when determining package cost. Each manufacturer's facilities or equipment is different and therefore the same package that costs one company six cents may cost another seven or more to duplicate.

10. *Packaging Operations.* Such items as automatic packaging machinery, hand operator's filling machinery, cartoning, bottling, canning, labeling, sealing, packing for shipment, etc., will also influence the design of your new package. Certain packaging details may mean the difference between machine and hand operation. The investment intended or equipment on hand will strongly influence what can and cannot be done in the way of the new package design.

Creative Design

As this part of the package design work is started we commence to appreciate the value of the previous factors considered because function and utility should govern the design.

In package designing the order of importance determined by optical processes of consumer attraction and recognition of packages are: Shape, color, design, title. These are the considerations necessary to develop the package to perform specific duty. Having previously established all restrictions, real freedom of creative efforts follow without fear of making those mistakes often incurred by a hit-or-miss method. By this time many ideas for the new package have suggested themselves. Bear in mind, however, that in addition to the package design quality of execution of the actual package is also necessary to make a successful package.

11. *Shape.* Many factors of construction and plant operation, including the product itself, influence the shape of the package. Economy and packaging processes practically predetermine the shape in many industries. But in these cases change in proportion may add distinction, convenience of consumer use, more practical size for better handling, etc. Stacking on counters, store shelves, shipping, etc., are also important factors to be reckoned with.

Selection of packaging material will be influenced by certain physical and chemical characteristics of the product itself and its weight, but does not mean that the display of originality will be hampered. Search the market for new materials or study different materials and subject them to tests. Study these materials for design possibilities, display effects, weight, protection, wear, production, machine handling, etc. Try, if possible, to use a container of different material and physical construction than competing products. This is sometimes difficult to do but offers wonderful sales advantages, especially if it improves the use of the product and complies with other influencing factors of production as outlined above.

The processes used in the manufacturing of various containers as well as those of factory packaging must be understood. Likewise the possibilities of the material itself to develop a practical, original and unique package construction. By the package is meant all those materials in their combined ensemble that form the presentation of the product to the consumer. Will the construction of the container fit in with present packaging equipment? If glass is the chosen material, can the shape be blown by machinery, can it be handled easily on conveyors, filling machines, capping machines, labelers, cartoners, etc? If paper or board is chosen for material, can the shape be produced with existing cutting, scoring, gluing, forming, wrapping and other machinery? Will seams show on display? If metal is chosen, can the shape be die stamped in one piece, etc.? If any of the newer synthetic resins are chosen, can it be moulded without a split mould; is the draw straight, will the shape slow up the production moulds, etc? These and many other questions that affect shape must be determined. Be careful that the package is constructed to have a good closure, especially if evaporation, seepage, crystallization, efflorescence or any other reaction is peculiar to the product. Develop patentable features of package construction wherever possible in order to facilitate ease of use by the consumer and at the same time act as an identification of your package. If the package fits the product, its use and its personality, it is good.

12. *Color.* Many packages are recognized immediately by their color or combination of colors. Color is a strong factor in creating package style, legibility, appeal, consumer interest, apparent size, attention value, family resemblance, etc. The se-

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lected color should, of course, be appropriate for the product and if possible suggest the product or some quality of the product. Color will also be influenced by the use of the product in consumption, to harmonize with surroundings, by trade traditions, container materials and many things discovered in previous research. Such conditions as scratching, smearing or marking in machine handling, moisture influence in tight wrapping, material surface protection, are as important economically as the factors of consumer preference. Never use conflicting colors to attract attention. Color harmony whether dominant or complementary will bring more satisfactory results. It is not necessary to use ten colors to produce a good package. A well-designed package should be easily described as having a certain color note which is produced by one predominating color or the correct blend of several to give the same effect.

13. *Design.* Market trends, consumer acceptance and association of ideas, the nature of the product, the message to be conveyed, etc., will materially affect the decorative design of the package. The design should be easily associated with the product or its use and much will depend on the job the package is expected to do and the market to be reached. If a package is being redesigned, too great a change is not always advisable. Previous research will indicate whether this is so or not. The general forward movement on all package designing is toward simplicity but not at the expense of utility. This is not a fashion or temporary mode, but a result of better merchandising, quicker sales, chain store handling, changing markets, etc. It has its origin in practical psychology. The more direct and simple the message, the quicker and more positive the mental reaction. Competition in display, featuring the package in advertisements and its use in the home have also caused this change to outmode many packages. There should be nothing about the design of the package to associate it with the element of time, except in those cases where the secondary appeal is one of long standing reputation such as might apply to familiar medicinal remedies. This may apply to certain other merchandise as well, but with the entrance of keener competition, new buying habits and new markets, the use of the container in the home, it is generally becoming necessary for even the largest and best known manufacturers to change their packages to meet these new conditions.

The perfect package would always remain new and attractive regardless of mode, but the perfect package has not yet been designed and probably never will be. A good package design should, however, last for many years in most industries. Where it is a trade custom to change the package every year or season, this custom must be followed because of novelty or the romantic appeal to that particular market. The primary appeal must be featured in the package design in the language of the consumer. Beware extremes on standard merchandise lest the design become outmoded before consumer acceptance has been built up. Test your design for memory value, description, family resemblance, etc.

14. *Title.* Title, typography, illustration where necessary, trade mark and other elements of design are all to be considered in conjunction with the appearance of the package design as a complete unit. In fact, no part of the process of package designing should be considered by itself without relation to all the other contributing factors. Package designing is not a matter of sticking on a label or changing a few lines of type or any other external application of something that some one likes. The lettering should be legible at a reasonable distance, simple in style, distinctive but never extreme to the extent of being a "freak style." It should harmonize with the package design and, of course, describe the contents. The name should be of first importance and as little additional typography or copy as possible with a sales punch or description of the product is all that should appear on the display face of the package. Lengthy directions for use, testimonials and what not should be placed elsewhere in the package, possibly on a package insert or outsert on a can or bottle. A distinctive title may be featured in the advertising and if well done will function as a trade mark, thereby aiding in the simplification of the package design. The lettering is also an important factor in assisting to feature the primary appeal of the product.

Successful package designs seldom just happen. Barring luck, the successful sales builders are the result of careful planning such as outlined here. Order of importance to the consumer is the controlling factor. Much depends on the correct interpretation of all these facts by the designer and the distinction between what is modern and what is modernistic. Consider the new package as a complete ensemble and the impression it creates. Check through your factory to discover production faults in design. Check in key store outlets for consumer reactions, and then get behind your new package and push with publicity. Cooperation at the point of sale will be a major problem this year but will be greatly simplified for the manufacturer whose package sells, because this is the kind of merchandise dealers push—for profit.

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Directory of Package-Testing and Advisory Institutions

By WALDON FAWCETT

This muster represents an assembly for reference purposes of the agencies—public, semi-public, and private—that are in position to contribute, directly or indirectly, to a knowledge of packages and packaging. In part, the inspiration for this roll call has been found in the disappointment expressed, now and again, by packagers over the comparatively small number of package-proving establishments equipped for miscellaneous investigation and experiment. From the implied reproach has sprung the desire to demonstrate that packagedom has unsuspected storehouses of technical data and expert opinion in the institutions which, if not devoted to appraisal of packages in their entirety, render no less valuable "intelligence service" on package materials, package designs, etc.

American Bottlers of Carbonated Beverages, 726 Bond Bldg., Washington, D. C.: Maintains, incident to its service activities, a trade mark bureau which comes within hail of packaging through efforts to stabilize notations on lithographed crowns, etc.

American Society for Testing Materials, 1315 Spruce St., Philadelphia, Pa.: Limited in its service to the packaging industries but makes some contact via its work on the standardization of specifications and methods of tests for miscellaneous materials such as papers, etc.

American Veneer Package Association, Washington Loan & Trust Bldg., Washington, D. C.: Scope of research indicated by title.

American Warehousemen's Association, 222 West Adams St., Chicago, Ill.: A resource for the answering of technical questions bearing upon package design and package construction as influenced by considerations of storage in, and distribution from, public warehouses. Also for details on the procedure of repacking or repackaging as carried on in local or regional warehouses.

American Waxed Paper Association, 342 Madison Ave., New York City: This organization claims that its standard requirements for packaging have resulted in the elimination of many needless sizes and that the organization has further contributed to the cause of better packaging by establishing standards for quality, weight, etc.

Associated Cooperage Industries of America, 2008 Railway Exchange Bldg., St. Louis, Mo.: Studies of the properties, construction and uses of tight and slack wooden barrels and kegs, with especial reference to specific commodities.

Associated Knit Underwear Manufacturers of America, Mann Building, Utica, N. Y.: Has on file the data accumulated preliminary to the adoption of five standard sizes of boxes for the underwear line.

Bureau of Business Research, School of Business Administration, University of Pittsburgh, Pittsburgh, Pa.: Has conducted packaging studies, notably "The Investigation of Consumer Attitude toward Meat Packages" carried out several years since with the cooperation of *The National Provisioner.*

Bureau of Fisheries, Department of Commerce, Washington, D. C.: A national bureau concerned with the maintenance and extension of the commercial fisheries of the United States and Alaska. Some years ago the bureau gathered, at first hand, valuable information on the containers and packages used in shipping shucked oysters. During the past year the bureau has established a refrigeration laboratory to facilitate study of the improvements in the methods of handling fresh fish. Technologists of the Division of Fishery Industries are devoting much attention to the packaging of fresh, frozen and smoked products and will be in position to give authoritative advice to packagers.

Census of Manufactures, and Census of Distribution, The Bureau of the Census, Department of Commerce, Washington, D. C.: Outstanding sources for authoritative statistical information covering the production and distribution of all classes of packages and packaging materials.

Container Testing Laboratories, Inc., 300 Fourth Ave., New York City: An organization of consulting engineers specializing in the design, construction, packing, testing and transportation problems of containers for all commodities.

The Cotton-Textile Institute, Inc., 320 Broadway, New York City: With the object of extending the uses of cotton, has carried on extensive experiments and tests on new uses for cotton bags and other cotton containers.

W. V. Cruess, associate professor of fruit products, 336 Hilgard Hall, College of Agriculture, University of California, Berkeley, Cal., has gathered first-hand valuable information on the packaging of fruit products, etc.

H. C. Diehl, U. S. Agricultural Experiment Station, Wenatchee, Wash.: Specialist in charge of federal investigations of the packaging of "frozen pack" of berries and other fruits, vegetables, etc.

Federal Trade Commission, Washington, D. C.: Creator of the institution known as the Trade Practice Conference which is employed, on occasion, to

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bring about concert of action in an industry covering packaging practices. Data available on specific projects, for example, the recommendation to the spice trade of standard containers for retail units.

Forest Products Laboratory, Madison, Wis.: Operated by the Forest Service, U. S. Department of Agriculture, in cooperation with the University of Wisconsin. Has a division devoted to containers and has carried on, over a period of years, much valuable research on containers. The information obtainable at this source is not confined, as many business men have assumed, to wooden packages.

Freight Container Bureau, American Railway Association, 30 Vesey St., New York City: Has outlined, in a large number of publications, efficient and economical methods of packing and shipping various commodities. Concerns itself with crates and crating rather than with internal packing and packages but has also carried on some research work on inside containers, as, for instance, the study of cans for liquids, semi-liquids and pastes.

Glass Container Association of America, 19 West 44th St., New York City: Carries on a continuing program of research on the various classes of glass packages such as preserve glasses, drug and pharmaceutical bottles, cheese jars, etc.

Institute of American Meat Packers, 506 South Wabash Ave., Chicago, Ill.: Incident to the work of standardizing packs, the Institute has carried on a considerable amount of research on packages as, for example, lard cans, sausage and sliced bacon cartons, wrappers for smoked meats, and glass jars for vinegar-pickled products. Merchandising investigations conducted to ascertain necessity for changes in the size and weight of packs.

League for the Suppression of Design Piracy, Graybar Building, New York City: Includes among its objectives protection of package designs and has in hand evidence of evils of design invasion.

Library of Congress, Washington, D. C.: Has a fairly complete collection of books in English and foreign languages on packaging in all its branches, and bound volumes of periodicals devoted to the subject. The one best source of out-of-print publications. Volumes may not be withdrawn from the Library but may be consulted in the reading rooms and photostat copies obtained when circumstances warrant. U. S. Copyright Office, a branch of the library, registers art subjects such as are employed in gift packaging.

Merchandising Research Division, Bureau of Foreign and Domestic Commerce, Washington, D. C.: The costs and operations analysis section has inaugurated, incident to general surveys of wholesale and retail distribution, a series of studies of packages and packaging practice. The current example is the study of proprietary packages, incident to the National Drug Store Survey.

National Association of Waste Material Dealers, Inc., Times Bldg., New York City: The salvage and reclamation division of this organization is a listening post for information on the salvage and reclamation of containers.

National Bureau of Standards, Washington, D. C.: The principal Federal scientific laboratory, which serves the cause of progress in industry. Has the dual function of a research agency and official testing station for all branches of the national Government in examination of samples and verification of Departmental purchases. Scrutiny of packages, as such, is confined principally to the package standardization projects of the Division of Simplified Practice. Practical aid for packagers is contributed by numerous specialized studies of packaging materials, notably papers, inks, adhesives, etc.

National Canners Association, 1739 H St., N. W., Washington, D. C.: Packaging is a major subject in the permanent program of this organization. Following the adoption of 27 standard sizes of cans, merchandising studies are in progress to ascertain the need of modifications or revisions of the package schedule.

National Cigar Box Manufacturers Association, 236 Chestnut St., Philadelphia, Pa.: Channel for informative contact with a highly specialized section of the container industries. Also sponsors the Wooden Cigar Box Boosters Club.

National Committee on Wood Utilization, Washington, D. C.: Has assembled and published data and suggestions on the reuse of wooden packages and the use of short-length lumber for package construction.

National Confectioners' Association, 111 W. Washington Street, Chicago, Ill.: Maintains a trade mark "search" service and has carried on research work on special aspects of packaging.

National Paint, Oil and Varnish Association, 18 E. 41st St., New York City: Maintains a trade mark bureau and committee on trade marks which make indirect contact with packaging activities in the effort to prevent duplication of dress of goods within the industry.

National Paper Box Manufacturers Association, 802 Liberty Trust Building, Philadelphia, Pa.: Clearing house for information on set-up paper boxes.

National Paper Trade Association of the United States, 420 Lexington Ave., New York City: Contacts the packaging field via its research work on gummed tape, tissue papers, paper bags, etc.

New England Council, Statler Bldg., Boston, Mass.: Carries on a consistent campaign to encourage the packaging of farm products under the "New England Quality Label."

New York University, Washington Sq., New York City: Has conducted, in its Department of Marketing, comparative tests to ascertain consumer preferences for package design and package color. A typical test was that to measure the reaction of a representative cross-section of the public to several tentative designs for a new package for Wheatsworth Whole Wheat Crackers.

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Package Manufacturers: All the leading manufacturers of packages are ready to place their facilities at the disposal of customers or prospectve customers and to give the benefit of their experience in advice on package selection. A number of the package producers have service arrangements whereby their engineers, when made acquainted with the special requirements of a particular packer, will submit without obligation explicit suggestions for suitable packages or full-scale models of original package units.

Package Standardization Specialists: The U. S. Department of Agriculture has, in its Bureau of Agricultural Economics, specialists who are the best sources of information on all the phases of package standardization which embrace baskets, crates, boxes, barrels, sacks and other packages for fruits and vegetables.

Packaging Machinery Manufacturers: All the leading manufacturers of packaging and wrapping machinery, mechanical labelers, etc., are prepared and willing to give expert advice on questions of package policy which are dictated or influenced by considerations of weighing, sealing, handling, etc. Naturally, each individual machinery builder is best qualified to give advice on package designs and package construction that has in contemplation the employment of his particular machinery.

Packaging Section, Transportation and Communication Division of the Bureau of Foreign and Domestic Commerce, Washington, D. C.: The Commerce Department's agency for packing research and dissemination of information. Supposedly concerned primarily with packing (especially for overseas shipment) as distinguished from packaging, but nevertheless a valuable source of data for packagers. Most important contribution to date is a series (as yet uncompleted) of bulletins on the various types of packages entering domestic commerce. Bulletins are available on fibre containers, wooden boxes, wooden crates, plywood boxes, wire-bound boxes, nailed wooden crates, parcel post packages, etc.

Paper Bag Manufacturers Institute, 11 West 42nd St., New York City: Information bureau on the paper bag medium in general and particularly its later modifications such as the "window" bag, etc.

Paperboard Industries Association, 608 South Dearborn St., Chicago, Ill.: Program of work includes research and market studies in the field of packaging and container manufacture.

Plywood Box Manufacturers Association of America, 260 Tremont St., Boston, Mass.: Directory service to a section of the industry.

Railway Express Agency, Inc., New York City: Gives counsel to shippers or other interested parties on "good packing," "good wrapping" and "good marking." Specific rules or recommendations for eleven different classes of commodities.

Standard Container Manufacturers, Realty Bldg., Jacksonville, Fla.: Seeks to promote uniform customs, usages, and standards for all fruit and vegetable packages, and carries on research in economies in manufacture.

Steel Barrel Manufacturers Institute, Keith Bldg., Cleveland, Ohio: Research and tests necessary for recommendations for steel barrel drums, etc.

Superintendent of Documents, U. S. Government Printing Office, Washington, D. C.: "Uncle Sam's mail order book store." Has for sale, at prices approximating cost of production, the various Government publications on packages and packaging, including the complete records of Congressional hearings on proposed packaging legislation.

Traffic, Receiving and Marking Group of the National Retail Dry Goods Association, 225 West 34th Street, New York City: Has assembled data on store packaging, etc. Has published reports on unit packing, shipping containers and store packing.

Wirebound Box Manufacturers Association, 111 West Washington St., Chicago, Ill.: Tests wirebound boxes and designs new packages. Prepares specifications for all styles of wooden wirewound boxes.

U. S. Food and Drug Administration, Department of Agriculture, Washington, D. C.: The official agency for the enforcement of the Federal Food and Drug Act. Stands ready, in the position of counsellor, to advise packagers of food products on what constitutes "misbranding" and to indicate what policies in package design will absolve packagers from any suspicion of "slack" packaging or "short" packaging. Illustrative of the practical research work of this regulatory institution is the comparative study of tea packages, undertaken to ascertain the comparative advantages and disadvantages of the different species of household packages for tea. This administration has, in its food control laboratory, a mineral water and beverage unit that is a source of information on the subject indicated.

United States Patent Office, Washington, D. C.: Supplies, on order by number, at a nominal price, printed copies of designated design patents covering packages, also mechanical patents covering package features with working parts, such as closures, etc. Accepts subscriptions for the delivery by mail of the weekly issues of the *Patent Office Gazette*, the official publication, which lists, illustrates and indexes the patents issued and trade marks registered, with the names of applicants. The *Gazette* likewise enumerates by title the package labels on which copyrights have been obtained at the U. S. Patent Office.

The United States Printing & Lithograph Co., Cincinnati, Ohio: This house has a trade mark bureau which affords information and suggestion on the subject of packaging. In 1931, the company did important research work on private brand packaging.

Wooden Box Bureau of the National Association of Wooden Box Manufacturers and National Lumber Manufacturers Association, Conway Building, Chicago, Ill.: Promotional work has included research on the development of small nailed wooden boxes for unit packages.

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The Size and Shape of a Package

STAFF COMPILATION

The correct size and shape of a package for any given commodity depends primarily on the character of the product and the conditions under which it is sold. Generally speaking, however, the rules governing the selection of the proper form for packaging any product may be grouped as follows:

A. Appearance.
B. Protection of contents.
   a. During shipping.
   b. While on display.
   c. While in use.
C. Advertising value.
   a. Suggesting character of the product.
   b. Carrying the trade name, message and name of manufacturer.
   c. Suitability for use in the various types of advertising.
D. Economy.
   a. In materials used.
   b. Time element of production.
   c. Adaptability to packaging machinery.
   d. Shipping and selling costs.

Appearance

Considering attractive appearance it must be understood that all package values depend upon the physiological laws governing sight. As the appeal of the package itself must be directed primarily to the eye, a working knowledge of these laws is essential to the creator of packages. Although it is unnecessary for the manufacturer himself to delve into the fundamental laws governing visual perception, he should be in a position to determine whether or not the artist he employs is familiar with these laws and their relation to the sales value of a package.

Simply defined, sight is merely the action of light and color rays upon the visual field of the eye, combined with the nervous excitation of memory centers located in the brain, caused by these stimuli. Therefore, the most attractive package form is one that causes a pleasant visual sensation and stirs into instant activity one of the memory groups. The habits of association acquired over a period of time are a large factor in determining the most effective package form.

Certain color tones have, because of the velocity of their light waves, the ability to command instant attention. Yellow, orange and red packages on a shelf filled with packages in other colors will be seen first because of the fact that they are saturate colors possessing a high velocity. Frequently the color employed in the design of the package is instrumental in creating an impression of size. Tests have demonstrated that packages presenting a large surface in white, yellow, orange or red appear much larger than those presenting the same area of space in blue, purple or black.

In packaging food products and many other kindred lines it is frequently desirable to select a package form that will give the appearance of being larger in size than it really is. In the choice of a package form for an expensive perfume the reverse is frequently employed to suggest the exclusiveness and rare quality of the product.

Judgment of relative sizes and shapes is the result of both sensory and intellectual activities plus the knowledge gained by actual experience in the comparison of objects within the field of vision at the same moment. At one time the ability to judge relative values of forms was considered by scientists to be inborn, but the results of later physiological tests have demonstrated that this mental attribute is gained only by visual experience. Children and morons are easily confused but as the intellectual growth increases with age or observation the ability to judge relative sizes and shapes becomes more acute. However, certain results of the actual movement of the eye itself during the process of perception frequently result in errors of judgment.

Although the weight of the contents of a package, particularly in food products, is regulated by laws and custom, some packages, because of their shape and apparent size, appear larger than others. The use of a package which appears larger than it actually is cannot be interpreted as an attempt by the manufacturer to defraud the buying public. It is, rather, an appeal to the bargain-hunting instinct inherent in all those engaged in any type of commercial activities. As the psychoanalysts designate it, it is the instinct of self-preservation, considered by them the strongest of all human instincts.

Because of the anatomical construction of the eye, observation of an object from side to side is more easily accomplished than from top to bottom. It is for this reason that short, broad packages and containers present a greater appeal than those of the tall, narrow variety. As there is a tendency in visual perception to follow beyond the outline of an object, a round container which presents no eye-arresting edge will appear larger than a square one, although the contents and actual area may be the same. It is possible, however, to include in the design of the package lines or arrangement of lettering that will produce the same effect, even though employed on a square container.

While it may appear that we have gone far afield

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in this discussion of optical illusions in packaging, a knowledge of these idiosyncrasies of visual perception is of great importance in designing a package. Application of these fundamental laws will result in the added attractiveness and salability of the package and they are of paramount importance in deciding the proper size and shape to be employed. Armed with this knowledge, the creator of a package design will be able to produce through his selection of color, form and size the illusions the manufacturer desires.

Protection

The first function of packages in the earlier history of this industry was protection of the product. More recently packages have become recognized as an important aid in merchandising and are being called upon to advertise and sell the product. In the main, however, in all branches of manufacturing the primary purpose of the package is protection.

Manufacturing centers are in many cases far removed from the point where the merchandise is sold and shipping problems enter into the selection of the proper package form. The size and shape of a protective container depends to a large extent on the character of the product to be packaged. Economy in shipping depends upon the selection of package forms that can be safely shipped over long distances without damage to the product and without loss through wasted shipping space. Packages in odd or irregular forms require special shipping cases and a great amount of shipping space is wasted, whereas it is possible to transport a large number of packages in the same space by the selection of simple forms. Shipping cases of standard sizes will hold many more packages in square and oblong shapes than oval, round and irregular forms.

Under existing retailing conditions the shelf space in the average grocery or chain store is limited, and for this reason the package form selected for food products must be one that can be easily stacked. Irregular shapes, particularly when the tops of containers are pointed or gabled, present a serious storage problem when shelf space is limited. A few of these difficult package forms have been successfully merchandised but the majority of them are unsuitable for food products. Toiletries, particularly in the grades retailing at high prices, are usually accorded more display space, and these products, because of their high retail cost and subsequent profit to the retailer, may be packaged in containers in odd and irregular shapes. In this instance it is frequently the novelty of the container that attracts attention and sells the product. Naturally, the rules governing the selection of package forms for food products also apply to toiletries, retailing at little profit to the retailer because these items are usually sold in large quantities and a plentiful supply must be stocked.

Conditions surrounding the use of the package also influence the selection of the package form. Shelf space and use by the customer under known conditions must be considered. Bottles containing face lotions and other toiletries must be of a shape convenient to hold in the hand as well as store in medicine chests and shelves.

Products which remain during use in their original container require a different form than those that are emptied immediately. Packages for spices and similar food products which are usually used directly from the container must be of a shape convenient to handle and of a size to store conveniently on kitchen shelves.

Jars in which salves or cold creams are merchandised must be of a size and shape which will easily permit the purchaser to use all of the product. Bottles containing olives and pickles must be constructed so that the contents may be removed without difficulty. Liquid products must be packaged in bottles from which they may be easily poured without the possibility of spilling.

All these conditions determine the size and shape of a package used to protect its contents during use and must be considered in selecting the proper package form for the particular type of product to be packaged.

Advertising

Frequently the selection of the proper package form is determined by its possible advertising value. Before the final decision is reached it is wise to consider the channels through which the product is to be advertised. As the different types of publicity demand different treatment of package forms, they may be separated into the following classifications:

A. Advertising in newspapers.
B. Advertising in periodicals.
   a. Black and white.
   b. Color.
C. Outdoor advertising.
   a. Bill boards.
   b. Car cards.
D. Dealer displays.
   a. Window.
   b. Counter.
   c. Shelf.
E. Sampling.

A product which has been, or is to be, widely advertised through newspaper publicity does not require a package form large enough to carry an extensive advertising message if the advertising campaign is to be a continuous one. There is little need of cluttering the package itself with lengthy sales messages if sufficient advertising is done to familiarize the buying public with the uses and merits of the product. In this case the package need only function as a link in the merchandising

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chain and the printed matter on the package itself may be limited to the trade name, the name of the manufacturer and, occasionally, the sales slogan or other catch-phrase used in advertisements.

It is a well-known physiological fact that the normal span of attention is both limited and selective, therefore the most effective package form is one that provides an opportunity for sharp contrasts either on the package itself or with the backgrounds to be used in display, and presents a compact, poster-like, identifying feature. As it is usually impossible to govern conditions surrounding the display of the package itself, it is wiser to concentrate on the package rather than to depend upon the display for contrast.

If the package is to be featured extensively in newspaper advertising the form chosen must be adaptable to reproduction in black and white. Limited advertising space frequently necessitates sharp reduction in the size of the package and for this reason the design and lettering used must be sufficiently strong in intensity and legibility to reduce to the required size without sacrificing its sales value.

It is an accepted fact that reproductions of the package in colored advertisements are of great assistance in fixing the package in the minds of the buying public. The number of manufacturers employing this method is on the increase and their reports on the steady growth of sales volume attributable to this practice are a strong argument in its favor. If the package is to be included in colored advertisements the package form chosen must be suitable for reproduction in that medium. The balance in advertising layouts is a factor worthy of greater consideration than is usually accorded in the selection of a package form. Possible artistic effects in relation to backgrounds and advertising copy must also be considered.

In this form of advertising the effect to be gained by the use of color in the package design is most important. White, red, yellow and orange packages give an impression of size but in many instances these colors complicate the problem of the advertising writers. Simple color effects and limitation of the colors used will greatly reduce the cost of color advertising. Each added color to a package design not only adds to the cost of reproduction but detracts from the effectiveness of the package when reproduced in this manner.

The question of the amount of advertising material to be included in the package design is also a determining factor in the selection of a package form. In many cases it is wiser to include a package insert in the package than to include directions and other printed material on the package itself. The additional cost of this method is more than compensated by the additional sales value of the package.

If, however, recipes, directions or other printed matter are desired on the package itself it is frequently advisable to choose a square or rectangular package form. Either of these shapes presents a large, unbroken surface for the display of the trade name and three surfaces which may be used for the directions and other printed material. These shapes also possess the advantage of commanding sufficient surface on display shelves.

If the character of the product requires a round container it is usually wiser to isolate the sales messages in panels on the back or sides of the container. This allows a large, unbroken surface for the display of the trade name or other identifying feature which may be used merely to identify the product, allowing a wide space for contrast of color or shape to instantly establish the identity of the product.

Outdoor advertising of the package itself necessitates the same consideration of size and shape required by other color advertisements. In this instance, however, the more poster-like in appearance the package form is, the better. This form of advertising, appearing as it does to the public in motion, depends for its advertising value on flash messages. For this reason the more simple package forms are more readily remembered, and if the package chosen is to be displayed in this type of advertising an easily remembered package form developed in simple color effects will produce the best results.

The possibility of dealer displays must also be considered in selecting a package form. The type of store in which the product will be sold determines to a large extent the shape and size of a package. Naturally, a food product to be sold in crowded chain stores where display space is limited requires a more simple form than a perfume to be sold in exclusive shops. Gabled tops and irregular forms so complicate the problems of the already overburdened store manager that they are usually relegated to obscure corners, whereas the package in rectangular, square or round form will be granted sufficient shelf or window space to insure its full advertising value.

Products of which sample packages are to be distributed should be packaged in a package form adaptable to reduction. This fact is most frequently forgotten and the sample is distributed in a package entirely different from that used to merchandise the product.

Economy

Tests have demonstrated that in many instances savings in container costs could be effected by a slight change in the shape of the package. As demonstrated in Figs. 1 and 2 the change in the shape effected a startling economy in the quantity of box board used in the package although the cubic contents remained the same. At the same time the new container because of its shape commanded more

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display space on the dealer's shelf and consequently secured better advertising for the product.

The same principle applies to cans and paper boxes. In the first instance it has been demonstrated that the simpler forms require less material and consequently cost less. While it is true that in the case of toilet articles retailing at a high margin of profit odd and irregular-shaped package forms frequently result in a larger volume of sales, it is nevertheless true that in products retailing at a low or medium profit the cost of the container is an important consideration. In addition to the savings effected in boxboard by the selection of simple forms there is also the saving in box papers and labor. In most instances paper-covered boxes are finished by hand and the labor involved in covering a many-sided box is much greater than that employed in covering a simple form.

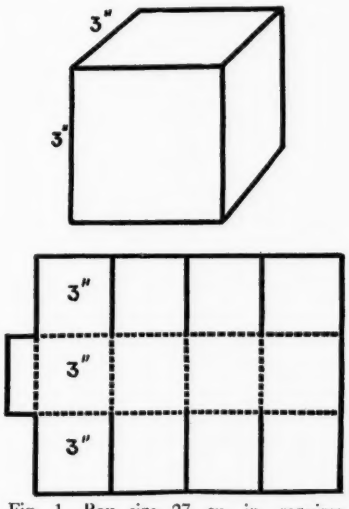

Fig. 1 Box size 27 cu. in. requires 108 sq. in. of boxboard

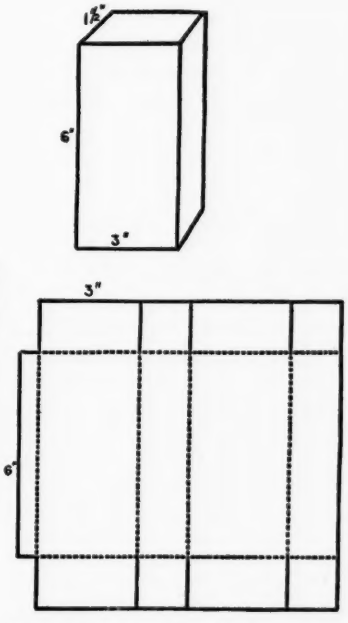

Fig. 2 Box size 27 cubic inches requires only 81 square inches of boxboard when this shape is used

One of the most important considerations in determining the size and shape of a new package is the necessity of considering the type of packaging machinery available. Many designers entirely overlook this consideration and the manufacturer should be certain that the new package will be adaptable to the packaging machinery installed. Certain odd shapes in boxes, cans, bottles and jars are difficult to fill, label and wrap and for this reason should be used only where production is limited and hand packaging is possible. If automatic filling, closing, labeling and wrapping or cartoning is to be used, the new package should be selected with this factor in mind. It must be remembered that the cost of the package should take into account the expense of its production as well as that involved in material and service expenditures.

The Use of Package Inserts

Package or bundle inserts may be divided into three general classes, as follows: The insert that goes into the original package sold to the customer; that which is placed by the retailer in bundles and packages that leave his store, and the insert that goes into a large container or bundle which is opened by the dealer.

Among the messages that can be carried with profit on package inserts are the following:

Refresh the mind of the buyer concerning the points that induced his first purchase of your product.

Tell the buyer how to use your product to the best advantage.

Tell the buyer of all the uses to which the product may be put.

Tell the buyer how to care for the product so that it will give the best service.

Acquaint the buyer with other products that you make or sell.

Secure names of buyers for mailing list.

Induce the buyer to send for samples of other products that you make or sell.

Secure the names of friends and acquaintances of buyers for your mailing list.

Tell the story of careful and clean handling of the product in factory and workshops.

Give the buyer information about the size and character of the company back of the product.

Make clear to the buyer the care used in the selection of materials.

Counteract efforts of competitors.

Bring suggestions or information that will help you to improve your product or extend its sale to other fields.

Carry testimonials from other users to help strengthen the confidence of buyers.

The above statements relate to the value of the package insert as a merchandising factor in the distribution of goods and to the various functions which it may be expected to perform.

In every group of industry which concerns itself with the use of packages, there is an opportunity for increased sales in the proper utilization of the package insert. So much so that the latter has come to be regarded as almost an integral part of the package.

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European Type Faces

Kabel & Italic Germany	GAIN popularity every DAY
Kabel Bold & Italic Germany	SIMPLY thru merit ALONE
Zeppelin Germany	NOT ONLY the advertiser
Bifur France	BUT EVEN THE LAITY
Erbar Initials Germany	ARE TAKING MORE
Metropolis Germany	NOTICE OF type design
Metropolis Bold Germany	THAN ever before
Metropolis Bold with long ascenders	The Best Faces will Pay
Nicolas Cochin Bold Germany	LARGER dividends always
Le Mercure France	THE FACES suggested here are
Astrée & Italic France	TYPES that are bound *to prove their WORTH*

VITAL change takes TIME	Eve & Italic Germany
LUCK plays many JOKES	Eve Heavy & Italic Germany
LIBERAL education	Narcissus Germany
PRACTICAL FORCEFUL	Neuland & Inline Germany
Typically Spanish Effect	Gloria Spain
ANY one can SEE	Greco Bold & Italic Spain
ADORNMENTS	Greco Adornado Spain
SUPERB GRACE	Sylvan France
TO one *who* IS	Sphinx & Italic France
NOT PREJUDICED	Sphinx Inline France
MANY advantages are *offered in Continental TYPES*	Lutetia & Italic Holland

American Type Faces

REFINED	FATHER
Elevated	Changed
Modernique	Novel Gothic
EMERGING	SEASON
Stillson	Boul Mich
QUAINT	MODERN
Regular Mon	Elaborate Displays
Bernhard Fashion	Rivoli
RED portfolios	HIS toys
Parisian	Dynamic Medium
PERFUME	*Respectfully*
daily thought	*Superior Quality*
Paramount	Raleigh Cursive
JUDGES	MOIRE
Cubist Bold	Modernistic
EXHIBITION	CAMEO
splendid bands	Handsome
Bernhard Gothic Medium Italic	Bernhard Gothic

Type That Talks

Rain Snow Hail Heat Fog Ice

RUST
MAN'S WORST ENEMY

DIRT
Shatters Sales Records!

Electric

The Singing Shave

"All Aboard!"

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Typography for Packages

STAFF COMPILATION

One of the most important elements, and one of the most neglected, in the design of the package is typography. Used correctly it plays a very important part in stimulating the sales of packaged merchandise. Used incorrectly it renders ineffectual an otherwise effective package.

The purpose of this cursory study is to show how scientific methods may be made serviceable in handling practical problems of type selection and to present facts and principles of practical interest to the producers and advertisers of packaged goods.

The basic principles of package design which make for effective packaging are applicable in almost every respect to typography. The prime requisite in the choice of a type face is *legibility*. Above all else it should be easily read. If it fails in this it is a poor type and the package suffers accordingly. Legibility depends upon a number of factors, all of which should be correlated in the creation of the package. Namely: size of type, amount of space surrounding it, color of background, the kind and texture of the package material, the size and shape of the package and similar mechanical factors.

Another quality is *simplicity* in type. In choosing a type the following questions should be considered. Does it "stick" in the reader's mind because of its simplicity or is it too involved? Does it offer a ready recall and identification? These should be taken into consideration, for the easier the visible impression is made in the mind of the consumer, the quicker will your packages sell. Simplicity in type makes for practicability in production and lessens the chances for mediocre printing. Eliminate anything tending to reduce the force of your message.

Getting attention or *display value* is a vital element in your choice of types. When one considers the number of packages on the shelves of a store, the reason for display value will be quite apparent. Your type face should make itself seen—should be outstanding and inviting. An important point to remember here is that type should not draw attention to itself as a type but only serve to make interesting that which it records.

The type should convey a feeling of atmosphere and of appropriateness. Atmospheric type has been used effectively by a number of manufacturers and in many different ways. It makes a pleasing impression and, properly conceived, this impression can be effective in pushing the sale of the product. The appropriateness of type or lettering to the commodity in the package depends upon its "feeling tone," its "atmosphere" or psychology. Type may be agreeable or disagreeable to look at; it gives form to thoughts as well as to words, and each type face expresses a definite idea or feeling or creates a definite image. In other words, make your type talk! Make it express durability or strength, character and dignity, dependability or delicacy. Is it virile, a man's product, or a thing of beauty for feminine consumption? The lettering for Speed, Grit or Disston (with sawtooth letters) carries something of the significance of the product. The lettering of the trade names of Scottissue and Nashua Woolnap Blankets suggests softness. The difference in feeling as one reads is seen in two packages bearing the same name. Lux for hand soap and Lux for clothes—a delicate pattern of squares in one case and a heavy letter in the other. Such abstractions as wholesomeness and purity can even be suggested by the manipulation of type or lettering.

In conjunction with a proper degree of atmosphere one will find that an impression has been left—some form of identification has been established. When the need or desire for the product is aroused in the mind of the consumer, immediate identification will put your product under his or her arm.

There are a few definite rules to keep in mind in specifying type for copy on the package.

Lines that are too long cause extreme eye movements. When too short they cause a start and stop movement which produces eye fatigue. Try to see the beginning of your copy and the end at the same time and you'll strike a happy medium. Lines of equal length relieve eye fatigue.

Using more than two or three sizes of type destroys emphasis, makes reading more difficult, is slower and fatiguing to the reader.

In spacing be sure that the grouping of your thoughts "makes sense." Give yourself plenty of white space and be careful of the background of your body of copy.

Lower case letters are more easily read, tests have proved, because words are read by shape and by their familiarity.

For effective typography remember that type faces constructed along simple lines with relatively fdw angles and corners are most easily read. Fancy and unusual faces should be avoided since they offer difficult reading.

Type selection for a package that has character, individuality, creates a favorable impression and reflects the product, is not a formidable problem—it calls for common sense and the application of proven advertising principles.

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Correlation Chart of Color Interpretation

1. Light Values *2. Medium Values* *3. Dark Values*

HUES	SYMBOLISM	CHARACTERISTIC	MOOD	INFLUENCE	TEMPERATURE
Red-purple	2 Battle 3 Heroic Virtues 2 Valor 3 Prowess	2 Stateliness 2 Impressiveness 2 Haughtiness	3 Cold 3 Chilly 2 Tragic	SUBDUING COLORS	COOL COLORS
Purple	3 Loyalty 2 Patience 2 Fidelity 3 Allegiance	3 Dignity 3 Royalty 3 Seriousness 3 Imperialness	3 Dark 3 Ceremonious 3 Cold, Grave 3 Austere 3 Pompous		
Purple-blue	3 Solemnity 3 Majesty 2 Reverence 2 Sublimity	3 Apathy 3 Harshness	3 Stern 3 Unyielding 3 Cold		
Blue	3 Truth 3 Consistency 3 Justice 2 Sincerity	2 Tranquillity 2 Calmness 1 Expansiveness	2 Passive 3 Cold 3 Deep		
Blue-green	2 Peacefulness 2 Serenity 3 Placidity	2 Retiredness 3 Unexpressiveness	2 Sedate 3 Sober 3 Cold	TRANQUILIZING COLORS	
Green	2 Fruitfulness 2 Hope 2 Immortality 2 Prolification	2 Youth 2 Vigor 2 Life 2 Appeal	2 Cool-Passive 1 Refreshing 2 Restful 3 Quiet-Retiring		WARM COLORS
Green-yellow	2 Encouragement 1 Happiness 2 Success 1 Prosperity	1 Cheerfulness 1 Refreshfulness 1 Vivacity 1 Alacrity	2 Springlike 1 Gentle 2 Stimulating 2 Flush or Warm		
Yellow	1 Supreme Wisdom 1 Goodness 1 Inspiration 1 Prudence	1 Joyfulness 1 Gaiety 1 Merriment 3 Sickness	1 Warm 1 Light 1 Joyous 1 Active 1 Stimulating	EXCITING COLORS	
Yellow-red	1 Knowledge 2 Benevolence 2 Home 1 Light 2 Benignity	1 Liveliness 1 Warmth 2 Gravity 3 Sombreness 3 Strength	1 Mellow 1 Warm 2 Rich 2 Luscious		
Red	2 Love 2 Valor 2 Passion 2 Truth	2 Danger 2 Sanguinity 2 Fire 2 Anger	2 Intense 2 Fierce 2 Hot 2 Vital 2 Active 2 Exciting		
White-silver	Chastity Innocence Purity	Peace Modesty Reservedness	Dignified Clean Chaste		
Gray	Tribulation Humility Distress	Quietness Subduedness Repressiveness	Calm Serene Mild		
Black	Death Mortality	Gloom Darkness	Mournful Sad		
Gold	Richness Glamour Enchantment	Money Gold Glory	Glorious Powerful Distinctive		

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Color

By CARL E. FOSS

The International Printing Ink Corporation

The subject of color has taken on tremendous concern in this day and age primarily because it is forcibly brought to our attention in a multitude of ways. In the past the use of color was restricted, due to the many difficulties arising in the handling of the color mediums. Now that color is available to a greater extent than before and its effect is utilized in all fields of endeavor, it is natural that we should become interested in its proper usage, an interest which becomes more vital as time goes on.

The use of color enters into the personal as well as into business and pleasure. At no time are we free of its presence. While civilization has given us a general color appreciation, too often in our attempts at color arrangement we overstep the mark and our results turn primitive. We are also aware of the effect of color on our minds and the manner in which color may be fitted to our moods. Usually we like color effects that are classed as harmonious, and resent haphazard color arrangements.

In our economic and civic life, color plays an important part. Our attention is gained by color in contrast. Our purchases are also affected by color. Invariably when purchasing, an attempt is made to associate the color of the new article with the color of the articles already on hand. These attempts at color balance are continually being made by us all. We strive to balance color in the furnishing of our homes; we attempt the same thing in business. If we want to place a product on the market, we allow color to vie with utility.

Such universal use of color and our general color appreciation surely will benefit by a common language for color reference. At present too many different sets of terms are in use. Each, perhaps, may have its advantages in its own field, but, when colors specified by such terms are required in other fields, the terminology is hopelessly foreign.

The first step in color education for the layman would be the specification of color regardless of the way in which the color was produced. When this step is made, the others will follow in a more definite and reasonable manner. The advanced steps are found in chemistry, physics and physiology. The chemist can explain the production of natural and artificial pigments and dyes and, to a certain extent, their intermixture. The physicist can explain light theories, radiant energy measurements, etc., and the physiologist can explain the function of the eyes and allied nervous system in receiving these light impulses.

We may sum up the interests of all phases of science by saying that color is a sensation. Color is our interpretation of an excitation of the retina of the eye by light (radiant energy) which is transmitted through or reflected from some interfering substance which may selectively absorb that light. Everything we see is color. Color difference alone is responsible for form and shape.

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Specification of Color

In the specification of color in which the layman is most interested, we must use three constants as follows:

1. Hue is the fundamental characteristic of color. It is the attribute by which we distinguish a red from a yellow, a green, a blue or a purple. This term has found universal use and acceptance in all fields of color and in all notations.
2. The second characteristic is relative to light reflection. Several terms may be used to describe this feature, such as Value, Luminosity, Brightness, Brilliance.
3. The third characteristic is relative to light purity. Several terms may be used, such as Chroma, Saturation, Intensity.

Perhaps the best way in specifying color is to take the three dimensions given by Munsell, whose works are more easily available than others on the subject. He uses Hue, Value and Chroma. His definition of Value is given as the lightness or darkness of any color. Then Chroma becomes the weakness or strength of a color. A gray, accordingly, can have no hue and no weakness or strength, it possesses only lightness or darkness. The Value difference of certain colors may be generally divided into two major classes, i. e., tints and shades. Tints are colors in which white predominates; shades are those in which black appears. Pink is a high value red or a tint of red; maroon is a low value red or a shade of red. Other hues also follow this general scheme.

The correlation of these three dimensions may seem complex, but they may easily be understood if the method given below is followed.

If a heterogeneous combination of colors, i. e., all conceivable colors, is taken, the first logical step would be to separate the grays from the other colors. This gives two sections, Achromatic Colors (grays) and Chromatic Colors.

The smaller group would be the Achromatic Colors. These colors can be arranged in a vertical series from white at the top through a progression to black at the bottom. Ten steps of Value on a decimal scale are sufficient for most work. This clearly

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shows the difference in light reflection. The final arrangement of the Achromatic Colors produces a complete Value scale of gray. This sequence is readily understood and generally accepted.

The logical arrangement of the Chromatic Colors then should follow the same general lines. If this is done, it will be found that all these colors can be set in groups which correspond with each step in the gray Value scale. All the colors in each group will then conform to one constant, i. e., relative lightness or darkness or Value.

Now that one constant has been completely established for all color and knowing that Achromatic Colors have only this one dimension, it remains to arrange the minor groups of Chromatic Colors according to their other attributes, i. e., Hue and Chroma.

When each group of these colors is placed in circle order, they will inadvertently be arranged in an orthodox rotation, showing the sequence of red to yellow to green to blue to purple and back to red. This arrangement gives a hue separation, but it will be found that certain colors of a definite hue appear more or less subdued when compared to others of the same hue, the Value remaining constant. This difference in saturation is notated as Chroma. The Chroma arrangement can be shown as spokes of a wheel with increasing saturation or Chroma ranging out from the hub. The grayed colors lie close to the hub and the strong colors at the ends of the spokes.

At various Values certain hues will be found to be of greater Chroma than others, a condition which varies throughout each Value step. At the higher Values, yellow will be of greatest Chroma; at the lower, a purple-blue will predominate. Other hues arrive at maximum Chroma at Value positions on a fairly direct line between these two extremes. By superimposing these three attributes a color solid is obtained in which every conceivable color will have a definite place.

As long as there is a decimal notation for Value it will be very much in order to have also a decimal notation for Hue. Starting with five fundamental hues, red, yellow, green, blue and purple, the intermediate hues will then be yellow-red, green-yellow, blue-green, purple-blue and red-purple. This number of hues gives a fairly smooth hue circuit. If it is desirable to know the complement of any hue it will be found to be exactly opposite, lying on a straight line which passes from the first hue through the gray axis.

Various types of color harmony may be found in definite geometrical order by such an arrangement. If an analogous harmony is desired, any combination of colors of neighboring hue may be used. If harmony by contrast is desired, colors of one hue may be used with colors of complementary hue. The complementary color can be split into its two neighboring hues if so desired. In fact, any symmetrical arrangement on this basis will be harmonious. If there is need to be exact about area relations, this, too, may be arrived at from these notations.

Many color problems may be solved by the use of notations of this kind. Of course, a standard set of charts showing definite steppings of color is necessary. This book of charts must show regular steps along a psychological line. The Munsell Book of Color is about the best work available, possessing all these qualities.

Color standardization has been carried on quite successfully in many fields by the use of Munsell notations with a surprisingly high degree of precision. In agricultural work, designing, printing and many other lines, a definite notation universally used will solve almost every phase of color standardization.

Only by universal appreciation of this necessity and genuine cooperation and education along these lines can any color understanding be had.

Adhesives in Packaging Operations

By D. V. WILLIAMSON

Williamson Glue and Gum Works

In the development of modern packaging, adhesives play an important part. Their work is done in such a silent and prosaic manner, however, that frequently they do not receive the attention to which their important function really entitles them.

Consider some of the packaging operations of today where adhesives are used:

Manufacture of set-up paper boxes.
Gluing of folded paper boxes.
Forming window box cartons with transparent cellulose sheets.
Sealing of individual cartons after they are filled with goods.
Wrapping of individual cartons with printed paper labels or transparent cellulose wraps.
Wrapping of products directly with transparent cellulose wraps and sealing them.
Tight-wrapping of cartons with printed paper labels.
Labeling of bottles.
Labeling of cans.
Manufacture of paper tubes and cans.

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Manufacture of fibre shipping drums.

Manufacture of bags using plain or waxed paper or transparent cellulose sheets, plain or moisture-proof.

Sealing of fibre and corrugated shipping cases.

The adhesive situation on these operations is complicated by many factors, among which are: the nature of the surfaces to be glued; the method of applying the adhesive, and the speed of the operation.

Adhesion, primarily, is a matter of surfaces. If an adhesive is not chemically attracted to the surfaces it is to join together it is useless for that operation. There is no such thing as strength in an adhesive unless the surfaces to be glued together are included in the thought. For instance, an animal glue which makes a joint in a piece of furniture that is actually stronger than the wood itself cannot hold a spot label on a tin can twenty-four hours. The label would drop off when the glue dried because the surface of the tin repulses animal glue instead of attracting it, and all of the dried glue would be found on the paper label which fell off the can.

A generation ago the only kind of glue in general use was animal glue. This product is made largely from the hides and bones of animals and is an exceedingly useful commodity in many lines of industry. It has, however, some inherent characteristics which make it of limited value in modern packaging. Among these may be mentioned the fact that it can be used when heated and that it has a more or less objectionable odor.

In the last ten or fifteen years there has been a great advance in the technology of an entirely different class of adhesives often referred to as vegetable glues since they are derived from vegetable rather than animal sources; chiefly from corn and tapioca. These products can be used cold and are odorless, and the vast majority of the labeling and sealing operations on packaging machinery are performed by such adhesives. When used with most kinds of paper or box board they develop a strength of joint in excess of the strength of the materials they join together. They possess, moreover, many other most desirable properties for machine operation.

Adhesives for Transparent Cellulose

Transparent cellulose wrappings are now being employed in practically every phase of packaging, and with them there has developed an insistent demand for suitable adhesives to use with them. To meet this demand has not been easy because of the many variables and difficulties present.

With plain cellulose sheets a careful chemical balance must be present in the adhesive used as otherwise the adhesive will attack the sheet and embrittle and weaken it. Excessive puckering of the sheet at the glued joint is another item that will occur if the adhesive is not designed for its delicate purpose.

In gluing paper or box board, thin films of adhesives are desirable; with plain transparent cellulose sheets, on the other hand, thick films of adhesive give stronger joints.

It makes a difference, from an adhesive standpoint, whether the operation is that of joining the plain transparent cellulose sheets to themselves, or to paper or to box board. An adhesive that gives the best results in the first instance may not also properly perform in the latter case.

Adhesives have sometimes been blamed in the case of window boxes made with plain transparent cellulose sheets because of subsequent warping and twisting of the boxes. The cause of this trouble does not lie in the adhesive. It is found in the hygroscopic nature of the sheets themselves. They take on moisture from the air in humid weather and stretch, and in dry weather they give off moisture to the air and contract. The adhesive has nothing to do with this.

With moisture-proof cellulose sheets other adhesive difficulties arise. Perhaps the most troublesome is to produce sufficient initial tack. With few exceptions adhesives for the moisture-proof sheets do not offer as quick initial tack as is possible with the plain sheets, or with paper or box board. This deficiency in initial tack is very cleverly offset in the design of some machines by causing the freshly glued joint to pass electrically heated hot plates, thus immediately enhancing the tackiness. Proper adhesives yield fast production with this method.

Here again, with moisture-proof sheets, it makes a great difference as to whether the operation is to join the sheets to themselves or to paper or to board. Some adhesives, which will join the sheets together, have no utility whatever in joining a sheet to paper. It is possible, however, in using the proper adhesives to join the moisture-proof cellulose sheets to themselves or to paper or to board, or to waxed board. Incidentally, the moisture-proof sheets are not hygroscopic and hence window boxes or envelopes made with them do not warp. They stay flat regardless of weather conditions.

Some other considerations that offer peculiar difficulties with adhesives for the moisture-proof sheets are odor, color, and non-stringing characteristics.

Very satisfactory adhesive results with the moisture-proof sheets are being obtained, however, in widely divergent industries and meanwhile constant research is producing better and better adhesives.

Adhesive operations are so diverse in modern packaging methods that there is no such thing as the one best glue, any more than there is the one best paint, for example. There is probably one best kind of paint for any particular operation; similarly with adhesives.

This article is concluded by listing the more important characteristics which users of adhesive must consider. For some operations one or several of these items are of prime importance; the "best" adhesive for any particular operation is that one with the best balance of all the factors:

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Chemical attraction (not repulsion) to the surfaces to be glued together.

Initial tack is usually more important than quick set because if an adhesive has initial tack sufficient to hold a seal down at once and keep it down, the time interval for ultimate setting is relatively unimportant.

Quick set is important where the package is subjected to stress as soon as it leaves the gluing machine—as is often the case with fibre or corrugated shipping cases.

Property of being used without heat.

Freedom from odor is important with food or other products susceptible to odor absorption.

Non-stringing characteristics are particularly important on a reciprocating type of machine which carries glue from a roller over to the package. On "straight line gluing" as on carton-forming machines this is relatively less important.

Property of increasing the tackiness and hastening the set by application of heated plates to the glued joint.

Non-foaming characteristics are important details on high speed machines.

Proper viscosity: Various machine requirements run from adhesives as free flowing as water to heavy bodied pastes that will not flow at all.

Color on transparent wrappings is of paramount importance.

Flexibility is sometimes necessary, other times not.

Being neutral in chemical action is necessary to prevent discoloration of printed wrappers and labels, actual deterioration of wrappers or disintegration of metal containers. These conditions sometimes are only noticed after a considerable time interval.

Permanency of joint: Weather and climatic conditions vary greatly and tend to affect the strength of some joints. A good adhesive will perform its function and make a good bond regardless of such changes.

Waterproof qualities are sometimes very essential.

Keeping qualities: Proper adhesives do not deteriorate with age.

Cost: This last item, in the matter of adhesives, certainly belongs in the last place in any list. If packaging manufacturers paid twice the prevailing prices for adhesives, the cost of this item would still be very small as compared with other items of packaging expense. But an adhesive that fails to perform its function, that slows up a production line, or stops it altogether, that lets packages open up on customers' shelves a thousand miles away and six months after shipment, that gradually discolors labels or corrodes tin cans would be a mighty expensive item to the packaging company if it paid nothing a gallon for it.

The manufacture of adhesives is an intricate business and the best policy for the owner or operator of modern, costly, high speed packaging machines is to state his particular problem in all its details to a reliable adhesive manufacturer who can be of real help to him out of his experience and who can supply him, month in, month out, with suitable and uniform products.

Ink in Package Making

By CARL E. FOSS

The International Printing Ink Corporation

When a printing ink is ordered in the production of a package, little or no consideration is lavished upon the innumerable functions expected of that ink. Yet, it is unconsciously assumed that, for the producing of an attractive and durable package, the following qualities will be present. The ink must reproduce the design with a fair degree of faithfulness of both color and detail. The design and color must be proof against not only the action of the elements, such as sun, heat, rain, etc., but must also resist the chemical action of the packaged product itself. The ink must also have a definite affinity for the stock upon which it is applied. It must dry well, producing either a glossy or a dull finish in accordance with the requirements. Then, too often, it is expected to stand up even if the stock on which it is used does not.

This seems a formidable list of requirements for printing ink to fulfil. However, if proper cooperation between ink maker and ink user is had, inks which will satisfy most of these requirements can be made.

While proper design for a package is a complete subject in itself, the color reproduction feature of such design is extremely important. When a design is accepted, the reproduction is decidedly an engraving job. However, the reproduction of the colors of that design is another factor. It is at this point that inks having characteristics in every respect suited to the job must be chosen. The pigments used in these inks should be so selected as to give, without sacrificing other properties, the best color approximation possible. It would be well to list some of the properties of the various pigments used in printing inks, thereby explaining the color limitations. While the compatibility of pigments with vehicles must, because of its complexity, remain a problem of the inkmaker, a general rule governing

this may be stated as follows: generally the natural earth pigments make inks of poor working qualities; the artificial inorganic pigments make inks of good working qualities, and the organic pigments make the finest working inks.

The other characteristics of pigments are so distinctive that no general rule fits any case; the variation is so great that any attempt at correlation must be in table form with many descriptive terms to explain the relative degree of failure. Within reasonable limits, a table covering only general families of pigments with but certain important tests is all that is possible.

As above indicated, the pigments are divided into three definite classes: Natural Inorganic, Artificial Inorganic and Organic. The usual tests for such pigments are: permanency to light (showing both actual outdoor tests and indoor fadeometer tests), acid and alkali, alcohol and paste.

In the acid test a weak acid such as vinegar is used; in the alkali test a two per cent caustic is used. The alcohol test is for an exposure of short duration as in spirit varnishing, while the paste test is made by stroking a neutral paste over the printed areas. Other tests, such as wax, lard, water, brine, baking and so forth, could be added as, with no limit set, property tests can go on indefinitely. In these tests the degree of bleed or failure is recorded in progressive terms such as fugitive, poor, fair, good and excellent.

While we have so far covered many properties of printing inks, there are others which are also important. If transparent inks are required to attain certain color effects with a minimum number of

PROPERTY TESTS OF COMMON PIGMENTS USED IN PRINTING INKS

Pigment	Indoor	Outdoor	Paste	Alcohol	Acid	Alkali
			Natural Inorganic Group			
Raw Umber	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Raw Sienna	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
			Artificial Inorganic Group			
Burnt Umber	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Burnt Sienna	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Cadmium Red	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
English Vermillion	Excellent	Good	Excellent	Excellent	Excellent	Excellent
Orange Mineral	Good	Poor	Excellent	Excellent	Good	Good
Chrome Yellow	Excellent	Excellent	Excellent	Excellent	Good	Poor
Cadmium Yellow	Excellent	Good	Excellent	Excellent	Excellent	Excellent
Zinc Yellow	Excellent	Poor	Fair	Excellent	Poor	Poor
Chrome Green	Excellent	Excellent	Excellent	Excellent	Excellent	Poor
Iron Blue	Excellent	Excellent	Excellent	Excellent	Good	Poor
Ultramarine Blue	Excellent	Fair	Excellent	Excellent	Poor	Excellent
			Organic Group			
Bismarck Brown	Fugitive	Poor	Poor	Fair	Poor	Poor
Maroon	Excellent	Fair	Excellent	Good	Excellent	Poor
Madder Lake	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Rhodamine	Fugitive	Poor	Poor	Poor	Fair	Poor
Rhodamine (Perm)	Good	Good	Excellent	Poor	Excellent	Good
Eosine	Fugitive	Poor	Poor	Poor	Poor	Poor
Lithol Rubine	Excellent	Poor	Fair	Good	Poor	Poor
Lithol Red	Good	Fair	Excellent	Good	Excellent	Poor
Scarlet Pulp	Fair	Poor	Poor	Excellent	Poor	Poor
Pigment Scarlet	Excellent	Fair	Poor	Excellent	Poor	Poor
Para Red	Excellent	Excellent	Excellent	Poor	Good	Excellent
Toluidine	Excellent	Excellent	Excellent	Fair	Excellent	Excellent
Red Lake D	Good	Fair	Excellent	Good	Poor	Good
Red Lake C	Fair	Fair	Excellent	Good	Excellent	Fair
Fire Red	Excellent	Excellent	Excellent	Fair	Excellent	Excellent
Permatone Orange	Excellent	Excellent	Excellent	Good	Excellent	Excellent
Orange II	Fugitive	Poor	Poor	Good	Poor	Poor
Hansa Yellow	Excellent	Excellent	Excellent	Good	Excellent	Excellent
Tartrazine Yellow	Poor	Poor	Poor	Excellent	Poor	Poor
Quinoline Yellow	Poor	Poor	Poor	Fair	Poor	Poor
Naphthol Yellow	Poor	Poor	Good	Excellent	Poor	Poor
Acid Green Lake	Fugitive	Poor	Poor	Good	Poor	Poor
Malachite Green (Perm)	Good	Fair	Excellent	Good	Excellent	Excellent
Brilliant Green	Good	Fair	Excellent	Good	Excellent	Excellent
Setoglaucine	Good	Fair	Excellent	Fair	Excellent	Good
Patent Blue	Fugitive	Poor	Poor	Excellent	Poor	Poor
Methylene Blue	Fair	Poor	Poor	Excellent	Poor	Fair
Induline Blue	Fair	Poor	Excellent	Fair	Good	Good
Indigo	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Alkali Blue	Excellent	Fair	Excellent	Poor	Excellent	Fair
Victoria Blue	Good	Good	Excellent	Poor	Excellent	Excellent
Methyl Violet	Fugitive	Poor	Good	Poor	Poor	Poor
Methyl Violet (Perm)	Good	Good	Excellent	Fair	Excellent	Excellent
Alizarine Purple	Fair	Poor	Poor	Excellent	Poor	Poor

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impressions it will be found that, if these points are gained, other characteristics may be lost.

All in all, suiting an ink to a job shows itself to be more of a problem than would be evident in a casual observance of the process. Although most calls for ink come to the inkmaker with almost no other data, he invariably takes it upon himself to find out as much about the job as is possible. With all this information on hand, the ink can be made correctly and the possibility of ink failure greatly diminished. Ink manufacturers are prepared to cope with these problems and extend every cooperation.

Waxed Papers

Waxed papers are generally divided into three large classes. There are, of course, many subdivisions of these three classes; but for practical consideration these general classes are as follows:

Dry Waxed Paper: Impregnated with paraffine of a relatively low melting point. Carries little or no surface wax and is dry to the touch. Not entirely proof against water, vapor and air. Such a wrapper is a protection against contamination by handling or contact and, to a considerable degree, against changes in moisture content. Is not self-sealing on application of heat. Its use is indicated in many special instances.

Semi-Moisture-Proof Waxed Paper: A heavier coating of paraffine with correspondingly greater resistance to the passage of air and of water vapor. Is not self-sealing on application of heat. Used as a wrapper for many products, but especially useful as a liner or divider in package goods.

Self-Sealing Waxed Paper: Heavily coated with paraffine of high melting point, skillfully applied so that through the application of heat, the coating will fuse at folds and openings to form a container, which is, to a high degree, airproof, moisture-proof, odor-proof and insect-proof.

Dry waxed papers are good "twenty-four-hour sheets" and admirably suited for use by delicatessen stores, groceries and meat markets as a covering and wrapping for moist and greasy products which require protection only for a short period of time. They are not nearly as airproof as self-sealing waxed papers but, unlike the former, can be formed into bags by the use of various common adhesives.

Waxed paper, unlike vegetable parchment paper, is neither water-proof nor greaseproof but, as pointed out, self-sealing waxed paper is airproof where parchment is not.

The use of waxed wrappers is being rapidly extended. New uses are constantly developing and with these new uses, variations in type of wrapper must naturally follow. Many industries and marketing practices have been changed through the adoption of protective and retentive coverings. Products of perishable or seasonable nature have become year-round staples. The question, "Is it fresh?" has become not a question of age, but of protectability in wrapping and, as such, merits consideration.

The varied uses of waxed paper of all grades are practically unlimited. While originally waxed paper was designed as a protective wrapper for food products, it has now extended its field of usefulness into a great number of industries. Many manufacturers have found that waxed paper fills a long desired method of protection against various factors that have had a tendency to deteriorate their products.

Another valuable property of waxed paper is its insulation value. Any food that is subjected to rapid temperature changes deteriorates quickly. An ice box is valuable not because it keeps food cold but because it prevents food from being subjected to rapid changes of temperature. Waxed paper performs a similar function.

Of recent years the metal trades have found that waxed paper is a good protector against rust and corrosion, due to its air- and moisture-proof protection qualities. This is especially true when a proper inhibitor is used. Laboratory tests show the protective qualities of waxed wrapped packages of food products against insect infestation, and the large use of waxed paper by progressive food manufacturers indicates that they realize the necessity of proper protection of their products.

Recent developments have made possible the production of a waxed paper of a transparent nature, which thereby insures the user of the full advertising value of his printed carton, as the reading matter can easily be read through the waxed paper wrapper. It creates an individual showcase for each package. Any product which it is desirable to have safeguarded from air, moisture, odor and rapid temperature changes can best be protected by using the proper grade of waxed paper.

Many factors enter into the selection of the proper type of wrapper for each individual product and the development of such wrappers has been, for some years, the subject of intensive scientific research. Chemical changes, moisture content, retention of aroma, attack by insects, fermentation and countless peculiarities in the product to be wrapped are to be considered. The services of fully equipped laboratories of various waxed paper manufacturers are at the disposal of users of waxed paper to assist in determining waxed paper problems.

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Genuine Vegetable Parchment

There are essentially two kinds of parchment, animal and vegetable. Animal parchment is the prepared skins of animals, usually sheep, and has been used in the past chiefly for documentary purposes. Vegetable parchment, as the name implies, is basically of vegetable origin. Pure vegetable parchment is semi-transparent, odorless, tasteless.

Everyone who has had to deal with moist, delicate, perishable food products such as butter, ice cream, fresh meats, fish, etc., appreciates that their marketing value is considerably elevated by using the proper wrapper.

Butter is one of the most delicate of food products and is exceedingly susceptible to contaminating influences. Realizing this fact, every precaution is taken in the manufacture of vegetable parchment to have the product reach the consumer in as pure and sterile a condition as it is humanly possible to make it under operating conditions. Even so, it is admittedly good practice to subject the butter wrappers, tube liners and circles to the action of boiling water or boiling super-saturated salt brine immediately before using. The effect of the above treatment is twofold, the heat destroying the mold spores that may adhere to the vegetable parchment, and the brine adhering to the vegetable parchment helping to inhibit growth of mold germs that may be in or on the butter.

One can readily understand that this extremely important preventative measure against mold infection would not be possible if ordinary paper were used. Under this treatment the paper would disintegrate to a pulpy mass and be rendered useless as a food wrapper. However, one of the outstanding properties of pure vegetable parchment, its insolubility, renders it extremely adaptable to this procedure. Then, too, this inherent quality of vegetable parchment, the fact that it does not disintegrate in contact with moisture, makes it possible for the ultimate consumer not only to remove the wrapper intact, but also, if only a portion of the product is to be used at one time, to rewrap the remainder, thus preserving the original good qualities of the butter until entirely consumed.

The property of butter to absorb readily foreign odors and acquire an unpleasant taste makes it imperative that a butter wrapper shall be odorless and tasteless. Pure vegetable parchment is odorless and tasteless and these characteristics unquestionably recommend its use to the packer of butter.

Butter tends to lose moisture during transportation and in storage. Aside from the reduction in actual value due to the diminished weight through loss of moisture, excessive leaking may injure its flavor. Vegetable parchment, being impervious to moisture and air, not only reduces this shrinkage to a minimum, but in storage prevents, to a large extent, losses incurred through contact with air, which causes deterioration of butter through oxidation or bacterial action, or both. Vegetable parchment-wrapped butter is also protected from the direct action of light, the tendency of which is to intensify bacterial action.

The general widespread demand for clean food makes it necessary for the producer to market his product in as cleanly and attractive a manner as possible. The translucency of the vegetable parchment wrapper presents the butter, on removal from the carton, in a clean, wholesome and appetizing condition. When printed with colorful designs of the various brand names in brilliant fast-color inks, vegetable parchment has sales appeal as well as protective qualities. Then, too, the print may be handled with facility because the fatty constituents of the butter have not permeated the parchment. It is the predominating characteristics of pure vegetable parchment briefly outlined above that have earned for it the distinction of being the best protective wrapper for all moist food products.

Vegetable parchment can be made into bags or envelopes. It is also fabricated with cardboard in box form as a grease- and moisture-proof liner. Manufacturers of genuine vegetable parchment maintain special departments for research purposes.

Glassine Papers

Glassine papers, from the standpoint of the protection afforded to the products wrapped or otherwise contained in them, possess the following qualities:

Greaseproof	Airproof
Greaseless	Moisture-proof
Dustproof	Strength

Considering adequacy of application, they are easily printed, readily gummed, furnished in either rolls or sheets, obtainable in various weights and can be successfully and economically used in automatic wrapping machines.

With respect to the merchandising properties of glassine papers—that is, their ability to attract attention and obtain sales for a package—the quality of

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transparency is undoubtedly the greatest argument for their use. This quality holds true whether the papers are plain, embossed or furnished in colors. Glassine papers likewise offer an opportunity for a wide diversity of design, either as a background for labels or other decorative features that may be incorporated in the package assembly.

Although recognized as an ideal wrapping agent for many purposes, it was found that with the development of the packaging of foods of a perishable or semi-perishable nature, better protection is given such articles when the glassine is waxed. Treated with a coating of tasteless and odorless paraffine wax the glassine becomes a most effective protective wrapper, for in addition to the greaseproof, dustproof and transparent qualities it becomes moisture-proof as well.

Other waxed papers are used extensively by the manufacturers of various food products; but waxed glassine has proved itself superior for certain commodities so that, in several instances, it has supplanted other waxed papers. For instance, the baking industry has adopted waxed glassine as practically a standard wrapper for cakes, cookies, etc., within the last five years.

Glassine paper as commercially produced today is comparatively strong, flexible and pliable. When waxed it becomes self-sealing and its transparency is enhanced. Used as an outside wrapper for a printed carton it presents a glass-like appearance through which the finest print is plainly legible. This results in the maximum advertising and sales value of the well-printed cartons which are coming into favor in present-day methods of packaging and merchandising among the several groups.

Further considerations which admit the ability of glassine papers to perform package functions are evidenced by the fact that these papers have been successfully used, individually and collectively, as wrappers, dividers and liners for cartons, cans and other types of containers as well as for separate or individual wrappers, applied directly to the product and forming thereby the package itself. Furnishing an ideal wrapping for many purposes, and due to their improved quality and adaptability to packaging operations, the use of glassine papers has become increasingly popular in the packaging field and promises to become even further extended.

During the past year experiments have been conducted toward the development of greater transparency in glassine papers as well as in the development of moisture-proof sheets.

Early in the development of packaging, it became apparent that glassine was, in many ways, ideal for machine wrapping; it was inexpensive and it filled the bill nicely as to the requirements of appearance and protection. The tobacco industry was one of the first to use automatic wrapping machinery with glassine as the wrapping material. Many of the leading brands of cigarettes have a glassine wrapper over the package, and hundreds of machines are now in use on cigarettes alone. Several brands of smoking tobacco also use glassine for wrappings.

The advantages of glassine wrapping were quickly realized by other industries, and a demand for wrapping machines to use glassine sprung up. This had been foreseen by the wrapping machine manufacturers, and they were ready with a number of models in lines of automatic equipment to handle the packaging of various sizes and shapes.

Many different types of machines have been built for wrapping these different types of packages. For the most part, these machines are built for one size and one type of wrapping only, although certain types are more or less flexible. Some types are faster than others, but an average speed of all types would be about 100 packages per minute.

Trade Customs of Glassine Division, American Paper and Pulp Association

Basis Weight: The term "basis weight" as used herein shall be defined as: "The weight in pounds of 500 sheets of a size 24 in. by 36 in."

Marking: Each package, if marked, shall be stenciled or labeled by the manufacturer with the actual contents, size, basis weight and count.

Cores, Plugs and Wrappers: On ream wrapped paper, the weight of the paper including the ream wrapper shall be taken as the net weight. No allowance shall be made for the weight of cores, plugs and wrappers on glassine paper in rolls or bundles. Returnable cores should be deducted from weight and charged as a separate item. Frames, cases and cartons should not be included in net weight.

Acceptances: Acceptances of orders are contingent upon uncontrollable causes of delay or prevention.

Quotations: Quotations, unless otherwise stated, are for prompt acceptance and are subject to change without notice. All quotations shall be made on a basis of scale weight.

Differentials: A—Except in the case of sales for export, prices shall include cost of all types of packing. B—Prices shall be the same for both sheets and rolls, except rolls of less than 3 in. in width, for which there shall be an extra charge. C—Prices quoted shall apply to orders of 500 lbs. or over. A differential of 2 cents per pound shall be charged on all orders not amounting to 500 lbs. D—Prices quoted for each grade shall be the same for all basis weights from 25 lbs. to 40 lbs. inclusive. A differential of not less than $1^1/_2$ cents per pound shall be added to this price when a paper of the same grade is required, but of a basis weight of less than 25 lbs. This differential shall not apply in the case of special grades such as window envelope, etc.

Carload Lots: Unless otherwise specified a carload of paper shall be considered as 36,000 lbs. or not less than the minimum carload weight specified in the railroad regulations, at the point of shipment.

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"Make and Hold" Orders: All "make and hold" orders must specify an ultimate date of shipment at which date goods are to be billed and the invoice taken to account by the customer, whether goods are ordered shipped or not.

Routing of Shipments: Shipments will be routed at carrier's option unless otherwise specified by customer.

Deviation from Basis Weights: A delivery of plain or embossed glassine, which averages not more than 5 per cent over or under the specified basis weight shall constitute a good delivery on an order and shall not be subject to rejection or allowance on that account. All billings shall be made on a basis of scale weight.

Variation on Quantity Ordered: Over-runs and under-runs shall be accepted subject to the following possible variations, which shall constitute a good delivery and be accepted by purchaser as such.

Less than 5000 lbs.—20 per cent over or under
5000 lbs.—not exceeding 10,000 lbs.—15 per cent over or under
Over 10,000 lbs.—10 per cent over or under.

When quantities are definitely limited, the combined variation shall apply above or below the limit specified. For instance, in the case of an order for "not less than" 5000 lbs., a delivery of "not more than" 7000 lbs., and in the case of one for "not more than" 5000 lbs. a delivery of "not less than" 3000 lbs. shall constitute good delivery.

Delivery Point: Delivery point is on board cars at place of manufacture.

Cancellations or Changes: Cancellations or changes, on any paper being specially made to order, will be accepted only if the paper is not actually in process of manufacture, or made, at the time of the receipt of notice regarding the cancellation or change.

Claims: For the mutual protection of both buyer and seller, it is agreed that:

A—No claims shall be allowed after paper has been converted. However, experience has shown that exceptional cases occasionally arise where the fault is clearly with the mill and where an absolutely literal enforcement of this custom would work injustice and hardship to the buyers. It is, therefore, understood that mills will enforce the spirit of this custom, deciding exceptional cases upon their merits and according to the rules of equity.

B—Claims for loss, shortage or damage in transit will be dealt with in conformity with the bill of lading.

Terms of Sale: Settlement for all sales shall be made not later than 31 days after date of invoice. When a settlement is made not later than 30 days after date of invoice a cash discount of 2 per cent shall be allowed on the amount billed for paper. When several invoices fall due in any one month, the date of payment shall be figured from the average date of said invoices.

Transparent Wrapping Materials

By HAROLD A. LEVEY

Consulting Chemical Engineer

One of science's outstanding contributions to the art of wrapping is the completely transparent cellulose sheeting available to the present market. While all of us can recall seeing thin gelatin sheeting about, and on packages as far back as we can remember, it was only until a year or so before the World War that we saw a completely transparent form of cellulose sheeting. The nature of the demand for the transparent wrapping fairly parallels that of the glass container in accordance with such paraphrases as "See what you are buying." However, it offers decorative possibilities not within the scope of the glass container. Its adaptability, due to its extremely flexible nature, makes this possible. Its capacity to be colored, printed upon and satisfactorily bonded together, substantially augments its other properties.

Gelatin sheeting has been almost completely replaced by the later types of transparent sheeting. It is manufactured by a limited number of concerns in this country[1,2] and to a greater extent in Europe, more particularly Austria. One of its uses today is as a covering for the windows of cartons, both in water-white and in colored sheeting. A field in which it appears to be holding its own is that of color projection screens for theatrical and display lighting systems. As it does not possess any substantial advantages over viscose sheeting, this latter type has rapidly displaced its use for general purposes. It is not water-proof nor moisture-proof, but is hygroscopic, and to a certain extent grease- and oilproof. Its price is higher than that of its nearest equivalent, standard viscose sheeting. It is readily attacked by insects and mold and is unsuited to come into direct contact with types of foods containing substantial amounts of moisture.

The first type of transparent cellulose sheeting which met with ready acceptance as a general wrapping was the viscose type.[3,4] This material is completely transparent and colorless, is slightly hygroscopic, neither water- nor moisture-proof, non-

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inflammable (but burns), grease- and oilproof, and is the lowest priced completely transparent cellulose sheeting on today's market. It is affected to a degree by differences in atmospheric conditions, more particularly humidity changes. It can be obtained in colors and in embossed designs. The non-moistureproof is not used as a food wrapping in direct contact with food products possessing a high moisture content. Its most extensive application is that of an outer wrapping for nearly every type of commodity of such size as can be readily enclosed within its standard size of sheet dimensions, and the price and profit margin of the commodity permitting its use. Its relatively low price, together with its ease of sealing and workability in automatic equipment, has extended its use to almost limitless fields.

A relatively new type of sheeting which has recently found its place on the American market as a general wrapping is that which is composed of cellulose acetate.[5,6,7] This material is inherently water-proof, and oil- and greaseproof. It possesses an unusually high degree of clarity, brilliancy and surface sheen. It is practically unaffected by atmospheric conditions and humidity changes. It is not attacked by insects nor mold, can be obtained in colors, is readily printed upon and embossed, as well as quickly cemented. Its properties can be so varied that the same material can be made into sheeting which has striking rigidity, or can be prepared so that it possesses the flexibility of rubber. Its relatively higher cost has limited to some extent its wider use, though, in the fields of electrical insulation, surgical dressing tissue and the like, it fills roles of usefulness almost without a competitive product. Its moisture transmission values can be controlled within definite limits, so that it may be readily applied to almost any type of wrapping, including direct contact with the food products which it encloses. As it is not affected by humidity changes, it is effectively used as a covering for the windows of envelopes and window cartons.

In order to overcome some of the shortcomings of the first two types of transparent sheeting mentioned, viz., gelatin and viscose, there have been placed upon the American market these two types of sheeting, coated with a very thin protective film, which renders them water- and moisture-proof in varying degrees.

Gelatin sheeting is now coated with a thin film of cellulose nitrate, which is said to result in a practically water-, oil- and grease proof film of relatively low inflammability, good strength, and suitable as a wrapping in direct contact with food products.[8] This coated sheet has substantially reduced its sensitiveness to humidity changes, and prevents the attack of insects and the growth of mold. It can be readily cemented, printed upon and embossed. Its cost is about one-third higher than that of the untreated sheet.

More or less paralleling the above type of sheeting is that which results from viscose sheeting whch is rendered moisture-proof by means of a very thin composition coating, on each of its faces.[9,10] It is quite highly resistant to the transmission of moisture. Because of the moisture resistance offered by this coating, this type of sheeting is invariably used where the wrapping must come into direct contact with the food products, and especially when it is desired that the original moisture content in that food or similar commodity be retained for a fairly long time. This applies particularly to such material as confections, baked foods and cigars, whose moisture content must not be lost; while crackers and related materials must not take up moisture. Even though this material costs over one-third more than the uncoated sheet, the volume of this coated sheeting is approaching that of the uncoated sheet. Obviously its resistance to moisture, as well as its ability to maintain the moisture content of the wrapped materials in almost the same state as when they left the manufacturer, appears to more than overcome the handicap of increased cost.

All of the above types of sheeting are practically odorless and tasteless, and can be formed into an almost gastight enclosure. This property enables these types of sheeting to form a package which will retain nearly all of the original odor and flavor of the contained materials.

Papers, by which we mean a felted mass of cellulosic fibres, have not yet been prepared in any modified or treated form which has resulted in a sheet that could be considered completely transparent. By this term we mean a transparency comparable with that of water, or of glass, or that when held up to the light would not diffuse the light source. As a result these types of papers appear in varying degrees of translucency. Properties and uses of the various types of wet and dry wax paper, glassines, waxed glassines, vegetable parchments and the like are of course already well known to the packaging industry. There are now appearing, however, types of resin-treated papers[8] which have an unusually high degree of translucency approaching transparency. They have good moisture transmission resistance, and are practically oil- and greaseproof for the limited period of time for which they are used as a food wrapping. Like all treated papers, as well as all the other sheeting mentioned in this article, these last-named products are airtight and dust-tight. They are immune from insects and mold growths. Their inflammability is slightly greater than that of the untreated paper. The cost of this form is intermediate between that of a good grade of waxed glassine and regular viscose sheeting.

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Modern trends have been decidedly in the direction of the completely transparent wrapping, and of these there is a preponderance of favor toward the so-called moisture-proofed types, notwithstanding their substantial increase in cost. These situations indicate clearly that the desiderata is to make the wrapped object completely visible as well as to reach the consumer in practically the same condition as when it left the manufacturer. Such conditions demand a form of sheeting, which shall itself be invisible and at the same time possess a high order of protective value. It must include such properties as water-, oil- and greaseproofness, and dust- and airproofness, a high resistance to moisture transmission, good tensile strength and flexure value, together with a retention of these properties over a substantial period of time. It must be available in colors, capable of being readily printed upon and embossed, easily and quickly cemented, as well as being readily adapted for machine operation.

While the moisture-proof viscose sheetings have, in general, most of these desirable properties, they have, however, many shortcomings. They are a laminated composite sheet, the surface coating which renders them moisture-proof having a thickness of only one ten-thousandth of an inch. While moisture transmission resistant, these sheetings are not completely water-proof. On immersion, or sufficiently long contact with water, the thin protective coating can be detached.

Probably the ultimate line of development will consist of a homogeneous sheet made from a base of cellulose acetate, or some similar derivative of cellulose, properly modified or treated to render it moisture transmission resistant. A considerable amount of work is being done along this line at the present time. Cellulose acetate and related derivatives are inherently water-proof, and when their moisture transmission is improved (as the resulting sheet is homogeneous throughout), and not subject to humidity changes, there will be no formation of crinkles, etc. This formation is particularly noticeable when both the coated and uncoated viscose sheetings are used as window coverings for cartons and the like. The cellulose derivative type of sheeting in addition to possessing a high degree of transparency, even to ultra-violet light, is very slow burning. Stability and longevity, freedom from discoloration, and resistance to the disintegrating effects of the elements are properties of substantial worth possessed by the cellulose derivative types of sheeting. The cost must be low, in order that it may be used to wrap even the lowest priced articles. However, this usually results when a large market prevails. Transparent sheeting has become the most accepted type.

It is always associated with quality products and low-priced commodities invariably give publicity to the fact that they are enclosed in a transparent wrapper, thus using this feature as a selling point.

[1] Marsene Transparent Paper Co., Gary, Ind.
[2] Brigham Sheet Gelatin Co., Randolph, Vt.
[3] Cellophane; Du Pont Cellophane Co., New York City.
[4] Sylphrap; Sylvania Industrial Corp., New York City.
[5] Inceloid; American Products Mfg. Co., New Orleans, La.
[6] Protectoid; Celluloid Corp., Newark, N. J.
[7] Eastman Kodak Co., Rochester, N. Y.
[8] S. W. Weis, Straus Bldg., Chicago, Ill.
[9] Moistureproof Cellophane; Du Pont Cellophane Co., New York City.
[10] Nymphrap; Sylvania Industrial Corp., New York City.

Linings for Boxes

Lining assumes as important a role in the makeup of certain packages as the outside covering. A most practical material for box linings is velveteen, frequently miscalled velvet. The difference between the two is a technical one and the average layman does not know the difference between velveteen and velvet. Velveteen is more practical than velvet for the following reasons: its appearance is that of a velvet; it is lower priced than velvet; its construction is such that when applied as a lining, pastes and glues will not come through; certain velveteens are prepared anti-tarnish for this purpose, which means that silver and other metals are not discolored.

Velveteen fills a particular lining need in good packaging, especially where a soft cushiony effect is desired, as nothing can quite give the effect of richness as a luxurious velveteen. Many box, case and tray manufacturers have been using velveteens for linings for many years, notably all the nationally known silverware manufacturers, pen and pencil set manufacturers, for perfume boxes, cutlery articles, razor cases, spectacle cases, draughtsmen's materials, toilet articles. Jewelry boxes are frequently made with velveteen as an outside covering and a lining.

Velveteen comes in widths of 18 in., 22 in., 24 in., 29 in., and 36 in., making for a minimum of waste in cutting, and in a color range of 102 shades. When necessary any other shades can be dyed to match other materials. Velveteen is particularly adaptable to packaging as it is easily handled and may either be tightly stretched or shirred.

Perfumes and compacts are generally shown to best advantage in the various champagne shades, whereas shades of old rose, Copen blue and gooseberry are used for manicure sets. Silverware manufacturers incline to the more regal shades of royal blue, though there are the usual variations to meet the individual creations. Silverware trays prepared for the packaging of silverware in individual packages are also being lined with velveteen in shades of burnt orange, special shades of green, Copen blue and grey. For the lining of boxes which hold pearls, greens and turquoise blues are used. For the general run of cheap jewelry display, the predominating colors have been military blue, emerald green and mignon purple. For pen and pencil sets such colors as burnt orange, special Nile greens, as well as crystal grey, are used.

Glazed and Fancy Papers

By LEONARD I. HOUGHTON

Glazed and Fancy Paper Association

The following definitions apply to the various types and kinds of glazed and fancy papers and to various terms used in connection with their sale and use.

Bodystock: The kind of paper, such as rag, sulphite, kraft and ground wood, which is coated, embossed, etc.

Brush Finished: Papers which after calendering are further polished in a machine which thoroughly brushes the surface. This process is not in as common use as formerly.

Cloth-lined: Paper and cloth pasted and pressed together into a single sheet of material. Used for paper collars, envelopes, tags, children's books, etc.

Coated, Fancy: Papers with fancy effects produced upon the coating machine instead of by printing or embossing. This is done by many means, such as spraying, spattering, mottling, felt blocks, moving brushes, etc. There may be one or several colors used and the finished paper may have a regular design or it may consist of a fancy effect without a design which repeats itself.

Embossed, Heat: Papers to whose coated surface has been applied a heated roller with a design, the raised portions of which, coming in contact with the coated surface, cause a change in the shade of color.

Embossed, Plain: Papers which have a pattern pressed into them. The raised portion usually appears on the front surface.

Embossed, Print: A plain embossed paper which has ink in the embossing pattern.

Embossing Designs—Common: There are around 100 embossing designs commonly used, such as basket, skytogen, etc.

Embossing Designs—Exclusive: There are several hundred different embossing designs, in addition to the common ones, which have been originated or purchased by individual manufacturers who thereby own these designs exclusively. Such designs are frequently protected by registration at the United States Patent Office. Most manufacturers do not desire to copy others' designs, preferring to have exclusive designs of their own. The Glazed and Fancy Paper Association, 146 Chestnut Street, Springfield, Mass., maintains a registration bureau of these designs for the protection of its members and to answer inquiries from customers and users. They are glad to tell users where a particular design may be obtained.

Fabric Designs: Printed designs, in imitation of various fabrics, commonly known as "fabric prints." Embossing designs in imitation of fabrics such as rep, linen, etc.

Flint: A coated paper, white or colored, finished by rubbing with flint stones, thereby producing a very shiny surface.

Flock: Papers coated with flock which is finely powdered wool, cotton or silk are called velour or suede and are differentiated by prefixing the name of the kind of flock used, such as cotton velour, silk velour or wool velour.

Friction Glazed: Coated papers that are finished in a friction calender which produces a highly polished surface as a result of the rotary action of a steel roller.

Gold Papers: Coated with metallic substances which look like gold.

Holly: Papers with a printed or embossed holly design.

Intaglio Printed: Papers printed with the intaglio printing roller which has the pattern cut into the roller and transfers the ink from these depressed places to form the printed pattern on the paper. The amount of ink transferred is controlled by the depth of the cut-in portion on the roller; in this way some parts of the pattern have more or less ink and thereby produce the printed pattern in varying shades of the same color. This cannot be done with a surface printing or wall paper machine. According to Webster this word is pronounced in-tal'-yo, the "tal" as in "tallow."

Leather Grain: Papers with leather grain designs which are either produced by printing or embossing. Common examples are alligator, Persian lamb, etc.

Marble Agate: Papers with a design imitating polished colored marble. The design is sometimes a printed design but true marble agate papers are made by floating coloring materials on a viscous bath. Usually a small quantity of an extract made from ox liver is mixed with the colors in order to facilitate their distribution. The design is then created by combining the colors on the surface of this bath with a wooden comb or the fingers. After the pattern has been made on this bath the floating materials are transferred by contact to the paper. This is an old manufacturing process in Germany where it is done by manual labor; in this country it is done by a patented machine.

Metallics: Papers coated or covered with such metals and in such a manner as to give the luster of metals. Bronze powder and aluminum powder are used chiefly for metallic papers made by the coating process; pyroxylin mixtures are also used to make metallic coated papers. *Half Fine Metallic* papers are produced by laying patches about five inches square of a thin copper or aluminum alloy on paper which has been coated with an adhesive. The

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patches are allowed to overlap so as to form a continuous metallic surface and the overlapping edges are brushed to remove any surplus. *Foil* papers are produced by the application to paper of a continuous sheet of metallic foil, usually tin foil, zinc or their alloys. The foil is adhered to the paper by the use of some adhesive. These are the real foil papers; imitation foil papers are made by coating processes as defined under the term tin foil.

Mica: Papers whose coating material includes small particles of mica which give a sparkling appearance.

Moiré: The name of a large class of embossing patterns which, after the manner of textiles of the same name, give a mottled or watered appearance.

Multi-Color: Papers coated, or originally made, with many colors mottled or blended into a fancy effect.

Non-fading: Papers that resist fading when exposed to sunlight. Some colors fade more than others.

Pearl: The well-known and very beautiful mother-of-pearl paper. The paper is coated by a special process with certain salts and then so treated that a crystallization process occurs which develops the mother-of-pearl design. This is a French manufacturer's product. An American company has developed a different process of producing the same results with pyroxyline.

Plate: Coated papers finished in a stack calender which produces a dull finish by means of pressure.

Printing Designs: Some designs are common designs, that is, common to the industry and obtainable from many different manufacturers. Other designs have been created or purchased by one manufacturer only, and frequently registered by them in the United States Patent Office. These are called exclusive designs. The office of the Glazed and Fancy Paper Association maintains a file of members' samples for use in answering inquiries as to the source of any desired printed design.

Pyroxyline Coated: Papers coated with pyroxyline solution.

Ream: 500 sheets is commonly used instead of the 480 which we learned in school. The standard size is 20 in. x 26 in. because these papers are most frequently sold in 26 in. rolls.

Rolls: A roll usually contains from three to four reams of the lighter weight papers, 17 lbs. to 25 lbs., heavier papers naturally having fewer reams per roll.

Sateen: Another name for mica papers.

Skytogen: A large class of embossing designs consisting of many small raised portions in no particular pattern. They are supposed to represent the background formed by a cloudless sky. The name is pronounced in various ways, but the preference seems to be with the accent on the first syllable: sky'-toe-jen.

Silver: Papers coated with metallic substances which look like silver, sometimes called aluminum papers.

Suede: Another name for velour or flock paper.

Surface Printed: A fancy paper on which a pattern of many colors has been printed by direct transfer of ink from raised portions of printing rollers.

Swirl: Designs, both printed and embossed, which consist largely of circular lines.

Tarnishing: Discoloration of metallic papers caused by chemical action from contact or vapors. The same action that occurs to gold and silver in their common uses.

Tinfoil: A paper coated on one or both sides to imitate tinfoil.

Tissues, Fancy: Tissue paper upon which has been printed a fancy design. Frequently, it is embossed with another design. Largely used for envelope linings.

Trade Mark Designs: Trade marks printed or embossed on the paper.

Velours: Another name for flock papers. Sometimes the term "velour" is applied to imitation leather papers.

Water-proof: Papers whose coating material includes such ingredients that the surface becomes to a large extent non-absorbent of water.

Weight: The weight per ream on a basis of 500 sheets, 20 in. x 24 in., of the bodystock.

Wood Grain: Printed papers with designs imitating various wood grains.

Considerable delay is caused by customers sending in an order for a certain number of reams of a certain color. Such an order does not state what size ream they desire, what kind of paper is wanted for a bodystock or what kind of finish is needed. Orders for paper should state the quantity; whether in rolls or sheets; size of rolls or sheets; manufacturer's sample number if possible; otherwise full details regarding the color, finish, and bodystock. There are many shades of most colors, hence, to say that a red is desired is not specific enough. A sample of the paper desired covers the need if the sample is large enough; this sample should be $8\frac{1}{2}$ in. x 11 in. if possible; a sample $\frac{1}{2}$ in. x 3 in. is so small that the weight of the bodystock cannot be determined.

Trade Customs of Glazed and Fancy Paper Association

Contents of Rolls: The number of sheets 20 in. long by width of roll.

Standard Colors and Shades: The forty colors (also white and India) adopted and accepted by the War Industries Board November 15, 1918, commonly known as U. S. shades.

Variations: Normal variations in quality, weight and shade should be accepted on special runs.

Overruns and Underruns: Orders under 50 reams standard size, 20 per cent; orders over 50 reams standard size, 15 per cent.

Prices: Based on reams 20 in. x 26 in., 500 sheets. Bills for other sizes to be at the converted price for the

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other size and the conversion of the 20 x 26 price to this other size to be shown on the bill.

Extra Charges: For sheeting, slitting or rewinding and for service charges on less than minimum quantity orders.

Terms and Delivery: All prices f. o. b. mill. Make and hold orders accepted on condition that a satisfactory specified date for entire delivery is given, at which date the goods are to be charged and the invoice accepted for payment whether goods are shipped or not.

Claims: Must be made within ten days. No claims allowed on goods cut, printed, soiled or damaged by the receiver but this shall not apply to claims based on apparent manufacturing defects.

Rolls: All paper in rolls wound coated side out to minimize curling.

Sample Books: Standard size approximately 5 in. x 8 in.

Ream: Standard ream for quotations, etc., 20 in. x 26 in., 500 sheets.

Metal Foil in Packaging

The scope of usefulness for metal foil in modern packaging practice is rapidly expanding. Candy bars, yeast bars, chewing gum, cigars, cigarettes and tea come wrapped in it, to mention only a few examples. Many gaily colored Christmas boxes will be lined with it this year, while thousands of corsages worn by the debutantes this season will be held in wrappers made from this same silvery material. Even the familiar milk bottle is now being topped with a cap made from aluminum foil, while the butter in the ice box remains fresher because of a protective layer of this metallic material.

The wide acceptance of metal foil is due to a combination of characteristics possessed by the foil itself, chief among which are its attractive appearance, its availability in many forms, and its covering area per pound, and consequent economy. Other interesting advantages include its freedom from toxic properties, its resistance to the passage of moisture and air and its non-tarnishing properties.

Metal foil is used plain, or decorated by embossing, printing or lacquering. Sometimes two or more decorative treatments are combined as, for example, a foil that is both embossed and lacquered. Each particular type of foil has its own field of applications.

Plain foil is the least expensive of the four and is employed where no particular merit would be derived from a decorative scheme. Examples of the use of plain foil are seen in wrappers for certain candy bars, containers for tea and for chewing gum wrappers. The outside wrapper carries the decorative scheme and the printed message in these cases. Where it is necessary to accentuate the metallic appearance of the package, the use of plain foil is preferred.

However, in some cases it is advisable to incorporate some sort of decorative scheme on the foil itself. This may be made to fit in with some general decorative idea used by the product manufacturer. For instance, one prominent candy manufacturer has the foil wrapper embossed with his trade name utilizing a repetition of this name as part of the pattern.

One way to decorate foil is by embossing, which is merely the process of impressing the foil with a design engraved on the steel embossing rolls. The scope of effects is varied, ranging from modernistic line patterns to ornate flowery designs with all manner of interesting in-betweens. Often a more effective background for the printed matter is obtained through embossing. Care must be exercised that the embossing be enough subdued so as not to detract attention from the printed matter. The embossed design should be sufficiently different from the printed design to eliminate any possibility of confusion between the two.

Because of the unusual lustre of metal foil, the use of a coat of lacquer gives highly satisfactory results. A rich metallic tint is obtained which is pleasing to the eye, yet not so vivid as to be objectionable. Lacquering is a slightly more expensive process than embossing but in many cases the additional cost is warranted. A sprinkling of chocolates contained in lacquered foil jackets adds life to the box, while decorative wrappers of lacquered foil around gift boxes are appealing.

The lacquering of foil involves the running of strips through special rolls which apply an even film of quick drying lacquer to the surface of the foil. Ingenious spray devices are used to secure mottled effects.

By incorporating the printed message and name of the product in the foil wrapper, the necessity for an additional wrap is eliminated. The printing of foil is in no way more difficult than printing on other surfaces. However, for best results, certain precautions may well be observed.

For instance, where heavy printing is necessary it is best to use a plain surfaced foil. The bright metallic background thus helps to set off the printed areas and make them more effective. On the other hand, fine printing and fine line design is best printed over embossed foil, provided that the embossing is not so marked that it tends to blend in with the printed material.

Highly concentrated ink dyes are necessary for proper printing on foil. Any reliable ink manufacturer will be glad to cooperate with the customer in the securing of the proper ink.

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Foil is often backed to give it additional strength and other desirable qualities. There are three methods of backing foil. The first utilizes a waxed paper; the second involves the use of a paper adhered to the foil by means of glue lines, while the third makes use of a paper that is attached to the foil by means of either a chemically pure asphalt or a colorless cement adhesive.

TABLE I—TYPES OF BACKING AND ADHESIVE

Commodity	Backing	Adhesive
Chocolate Bars	No Backing	.....
Chewing Gum	Waxed Paper	Wax
Candy Bars	Waxed Paper	Wax
Candy Mints	Plain Foil—No Backing	.....
Tea	With and Without Paper	.....
Cakes	Waxed Paper	Wax
Cheese	Plain or Transparent Paper Backed	If Paper Backed—Wax
Yeast	Plain—No Backing	.....
Ice Cream Bars	Waxed Paper	Wax
Cut Tobacco	Waxed Paper	Wax
Cigarettes	Bond Paper	Glue Lined
Box Covers	Bond Paper	Asphalt or Colorless Adhesive
Box Liners	Plain or Paper Backed	If Paper Backed—Glue Lined
Soap	Waxed Paper	Wax
Photo Films	Waxed Paper	Wax
Corsage Stems	No Backing	.....
Bottle Necks	No Backing	.....
Bottle Cap Liners	Plain or Paper Backed	If Paper Backed—Colorless Cement
Window Decoration	Plain or Paper Backed	If Paper Backed—Asphalt
Butter Wrappers	Paper	Wax
Meat Wrappers	Waxed Paper	Wax
Gift Wrappers	Bond Paper	Asphalt
Typewriter Ribbons	Wax Paper	Wax
Bon Bon Cups	No Backing	.....
Labels	Bond Paper	Colorless Cement
Vanity Boxes	No Backing	.....
Milk Bottle Caps	No Backing	.....
Frozen Food Packages	Bond Paper	Asphalt
Chocolate Buds	No Backing	.....
Insert for Transparent Wrapper	Wax Paper	Wax
Liners or Covering for Paper Cans & Containers	Plain or Paper Backed	If Paper Backed—Usually Asphalt

Of the three, the waxed paper backing is the least expensive and the easiest to apply. The paper is waxed and run through the rolls with the foil. The wax itself serves as an adhesive. Waxed paper not only adds to the strength of the foil wrapper but it also assists its moisture and air proofing qualities. Scuffing is prevented to a considerable degree.

A rapidly growing use for waxed paper reenforced foil is as a material for butter wrappers. In this case the waxed paper is used on the outside, the foil being placed in direct contact with the butter. Butter protected in this manner has been kept in an ordinary home electric refrigerator for from eight to ten weeks without any noticeable deterioration.

The use of glue-lined paper as a backing for foil is limited at the present time to three major fields—tea and cigarettes and tobacco. In each case the glue is applied in fine spaced strips rather than over the entire surface.

Where complete protection against moisture is desirable, an asphalt adhesive or colorless cement is used. This results in a tight firm bond which is entirely water-proof. It is largely employed for the wrapping of boxes. Where the flap is to be utilized as part of the seal, this type of liner is particularly recommended.

Colorless cement also gives a tight bond between the foil and the paper. This kind of adhesive is somewhat easier to work with than asphalt and results in a cleaner cut wrapper. Foil backed with it is easy to cut to any desired size or shape and is extensively used as a material for metal labels. Folders, greeting cards and menus are often made with this type of foil.

Foil is readily available in rectangular sections or in coils and may be furnished in any desired amounts. A wide variety of shades, patterns and prints as stock designs may be had upon request. It is advisable that the customer, when ordering foil, confer with the manufacturer as to the exact specifications of the job, so that the correct foil may be furnished to best meet the requirements of the article to be packaged.

TABLE II—COVERING AREAS OF FOILS

Thickness		Covering Area per Pound Square Inches		
Inches	Millimeters	Aluminum	Tin	Lead
0.00024	0.006	43300	16037	10358
0.00026	0.007	39200	14148	9378
0.00031	0.008	32900	12185	7850
0.00035	0.009	29200	10800	6950
0.00039	0.010	26200	9700	6240
0.00043	0.011	23750	8800	5660
0.00047	0.012	21700	8050	5180
0.00051	0.013	20000	7450	4770
0.00055	0.014	18550	6900	4425
0.00059	0.015	17300	6400	4125
0.00063	0.016	16200	6000	3860
0.00067	0.017	15200	5650	3630
0.00071	0.018	14400	5300	3430
0.00075	0.019	13600	5050	3250
0.00079	0.020	12900	4800	3080
0.00086	0.022	11900	4400	2830
0.00094	0.024	10850	4000	2590
0.00102	0.026	10000	3700	2340
0.00110	0.028	9300	3450	2210
0.00118	0.030	8650	3200	2060
0.00126	0.032	8100	3000	1930
0.00134	0.034	7600	2800	1815
0.00142	0.036	7200	2650	1710
0.00150	0.038	6800	2500	1620
0.00157	0.040	6500	2400	1550
0.00177	0.045	5800	2100	1375
0.00197	0.050	5200	1925	1235
0.00216	0.055	4700	1750	1125
0.00236	0.060	4300	1600	1030
0.00276	0.070	3700	1375	830
0.00315	0.080	3200	1205	770
0.00354	0.090	2900	1070	690
0.00394	0.100	2600	960	620
0.00787	0.200	1169	432	279

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Embossing for Packages

By ALFRED A. MORSE

Peerless Roll Leaf Company, Inc.

The use of embossing on a box top or package serves a definite purpose. It adds a third dimensional quality to the design and focuses attention on a name or trade mark. A casual survey of present-day packages, particularly in the confectionery field, discloses that there is a definite swing toward embossed effects in package design. To many buyers of high-priced candy the familiar embossed scrolls and filigree are as much a part of the purchase as the contents of the box.

With modern embossing methods unusual and distinctive effects are easily and economically obtained. Using the old method, for instance, it was first necessary to size the stock, next apply the bronze powder and then finally to emboss the design with a brass embossing die. Embossing by the roll leaf process requires but one operation. A roll of leaf or stamping foil is automatically fed across the face of a heated embossing die. One press operation transfers the foil to the paper and embosses the design at the same time. The resulting impression is clean cut, lustrous and distinctive. The colors available for roll leaf embossing are imitation gold and silver and a wide range of flat and metallic colors.

Roll leaf embossing can be done on Thomson-National presses of the Colt's Armory, Laureate, and cutter and creaser types, and on the special heavy duty Chandler and Price press with automatic feeder. These presses can be equipped with a roll leaf feeding attachment and a heating plate on the equipment necessary to produce distinctive embossed boxes.

Suppose the manufacturer decides to emboss the particular box wrap he is using or intends to use. First the artist goes ahead and makes a drawing in the usual way. If part of the design is to be printed, the printing plates for this part are ordered from the engraver. Next, a brass embossing die is made for the part of the design to be embossed with roll leaf. This die may be a raised or flat stamping die or perhaps a combination of both.

The printing of the box wrap is next done in the regular way and the wrap is now ready to be embossed with roll leaf. The stamper prepares the make-ready, using a hard board and building up with ordinary gummed paper tape, cutting away with a sharp knife to bring up the force wherever desired. The wraps to be embossed are fed into the press with the same ease and speed as in ordinary printing. A thermostatic heat control keeps the heating plate and die at uniform temperature. Automatic roll leaf feeding attachments enable the operator to feed from one to three different widths and lengths of roll leaf with each impression, which results in considerable economy. It is entirely possible to emboss two different colors in the same operation in some cases. With a criss-cross roll leaf feeding attachment the leaf can be fed from right to left as well as from front to back on any upright power press. In stamping frames for box tops and book covers all four sides of the frame or books can be stamped in one operation.

The development of roll leaf embossing is one of the most important steps in the decoration of packages. Formerly, it was necessary to use flat leaf in individual packs, leaf which had to be cut to the exact size required for each job. This required further operations such as laying on the individual sheet, brushing off and cleaning of the surplus leaf which stuck to the article which was being stamped. Using such methods, a stamper with two helpers could get out about two thousand impressions in a day. But with roll leaf embossing the same stamper without any assistance can produce five to eight thousand impressions per day and at the same time eliminate all laying on and brushing off.

Some of the leading manufacturers of roll leaf and roll leaf feeding attachments maintain service departments which cooperate closely with manufacturers and box makers. A manufacturer who decides to emboss a particular box wrap should obtain the advice of these roll leaf manufacturers as to the type of die to be used and the best methods of doing the work.

Raised Printing for Packages

Virkotyping or the process of producing raised printing began as an industry in 1912. The process at its inception was extremely crude and its many shortcomings almost offset its advantages, preventing general acceptance. Principal of the defects was the fact that the completed product was non-permanent, that is, it would not stand a fold and could be removed by slight rubbing.

Constant research developed materials that gave the desired flexibility and permanency but unfortunately these were such that considerable difficulty was experienced in using them for heavy production. These difficulties were occasioned by the necessity of employing a water base ink to secure the desired results, and the sensitivity of such ink to climatic conditions is too well known to require comment.

Two years ago Wood, Nathan & Virkus Company, Inc., brought out their (*Continued on page 68*)

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Folding Cartons

BY WILLIAM A. SMITH

Rochester Folding Box Co.

Twelve important things to consider carefully in the preparation and the manufacture of a carton are: size and form; attention value; composition; illustrations; color; engravings; reproductions; plate printing; lithography; stock; standardization and circulation.

Size and Form. Including the top and bottom, any ordinary carton has six sides for advertising messages. The form or shape should be planned and constructed for the convenience of display and handling. With the same number of cubic inches many different forms or shapes may be obtained—depending upon the product to be packed—being at all times a suitable container for the products as well.

Attention Value. A carton should attract attention. The color scheme and design when properly made should be pleasing and distinctive and the name of the product should be easily read at a reasonable distance. If an illustration is used with other type matter, caution should be exercised in preventing a crowdedness that detracts and is not pleasing to the eye.

Composition. The general balance of design is important. Top or bottom heaviness is dangerous. The eye's most natural follow-through is from upper left down to right. There is no general rule for using the same style of type throughout the design of a carton. The name of a product may be in a block letter and the descriptive matter carried out in another style. Upper and lower case has been found easiest to read. Simplicity is most essential in a good-looking carton. Blank space, copy and proportion are important. The tendency to crowd in too much copy on a carton is a fallacy. Successful manufacturers do not utilize all of the six spaces—in fact, the tendency is toward little copy.

The name of the product, an illustration, some words concerning the nature of the product, and the name and address of the manufacturer occupy the front. The back is often a duplicate of the front. A few remarks about the preparations or use of the product may be made on the sides while the top may carry the name of the product. If a long list of directions or recipes is found necessary it may be printed on the back of the carton, providing the list is not too long. The most successful way, however, to get your message to the consumer is through an insert placed within the carton.

Illustrations. Illustrations are not merely used to fill space. They play just as important a part in the carton as does the name or the color scheme. There is more reason why an illustration for a carton should be more accurately made than for an ad appearing in a publication—it is a permanent trade mark for the product. When planning a carton for a product the best artist should be called in for consultation. Technique for carrying power should be considered before a selection is made. Mistakes are too often made by the execution of a very effective illustration but this effect is lost at a short distance from the eye. It is a mistaken idea that it is necessary to use four or more colors to get an effective illustration. Many striking effects are produced in few colors.

Color. Surely among the many thousands of color shades one can readily find a pleasing and distinctive color combination. We of course receive all our basic color combinations from the primary color scale. To place together just the right color combinations is no simple task and it should be left to one who understands harmonies in order to receive a successful result. Bright colors are always favored because of their carrying power. Clean and brilliant colors play an important part in making a carton attractive. They have a tendency to give one the impression of freshness and quality, whereas the dirty and dull colors give the impression that the goods are old and shopworn.

To bring life to dull colors they should be varnished. Price-mindedness has been the cause of many poor-looking cartons. The printer, lithographer or boxmaker give you just what you pay for. They have their standard color combinations and when it is a cheap carton they place this on their standard color combination together with others of a similar nature and as a result your carton has the same look as a hundred others.

It is true that a special color combination costs more money but that is only true when a small quantity is wanted. It is a far better policy to pay a little more money in the beginning for an attractive and distinctive carton, than it is to pay little money for a carton with the idea that it is only a container for the product.

Engravings. There are two distinct processes of engraving commonly used in the manufacture of cartons. One is used by the plate printer and the other by the lithographer. Original engravings when made for the plate printer should be deeply etched and mounted on heavy metal instead of wood to assure sharpness in the making of electros from which to print the edition. The original engravings should never be used for printing purposes. Many expensive engravings have been ruined to save a few dollars.

On account of the chemical process of the lithographer it is difficult to have engraving plates made

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by any person other than the lithographer who is to print the cartons. Thus it becomes necessary to furnish the lithographer with the complete sketch together with possibly a set of working drawings. When making a proof by either the plate printer or the lithographer it should be made on the same stock as will be used on the completed edition.

Reproductions. The most successful reproductions are made from sketches or original working drawings that are approximately one third larger in size. Drawings that are too large usually lose a great deal of character. To receive the best results from your design it is best to consult your printer or lithographer before attempting to make working drawings or engravings. When half-tone screens or Ben Day tints are wanted it is important that the stock on which the job is to be printed is carefully considered because the size of screens are determined by the printing surface of the stock.

Plate Printing. Many a carton job has been ruined by poor registration, not because it was the fault of the printer, but because the printing plates were not made practical. To correct a situation of this kind is to begin with the making of the original sketch. Before undertaking the execution of a design consideration must be given to the preparation of making the plates in a practical way so that printing therefrom on the presses can be done with as little trouble as possible. Fine thin outlines around a color or a fine line as a border too close to the score lines are impractical and dangerous. This also applies to the lithographer.

Lithography. Within the last few years the offset press has made it possible to reproduce some colorful subjects on cartons. Some of the most attractive cartons are made on these presses. This press prints on any kind of stock, rough or high coated, and excellent results are obtained. Sharpness of lines and accurate reproduction of pictorial subjects have been successful. When a dull or rough finish is wanted the offset press does an excellent job.

Stock. There are many classes of carton board. The most commonly used is the clay coated, either news or manila back, and patent coated also with news or manila back. The clay-coated stock has a superior printing surface and is used for high grade cartons. When a bright white surface with little printing or ink is desired the clay coated will be chosen. The patent coated is mostly used for the average carton. The manila-lined is a better bender at the score lines than the news-lined. The selection of a proper board and stock with the right thickness is important in making a good carton. Some products can readily use different surface board as well as different thicknesses, even though the carton is of the same dimension. A board of the proper thickness to protect the product should be chosen.

Standardization. Continuity of design and standardization of color scheme is being considered more and more by the manufacturer today. It establishes a trade mark color and can be easily recognized by the consumer as belonging to that particular manufacturer.

Circulation. Many manufacturers realize that they have a potential market for introducing a new product through one of their cartons. A booklet, folder or coupon, either attached to the carton or placed inside of it, reaches the consumer with no cost to the manufacturer.

The carton selected for any product should serve four purposes: first, it should provide a suitable container for the product; second, it should protect the product; third, it should be of such form and shape as to make the product convenient to display and handle; and fourth, it should help sell the product. Not one of these four factors can be overlooked when selecting a suitable folding carton for any product. Ordering cartons of the wrong size often causes considerable waste. One means of overcoming this is to furnish the carton maker with a blueprint showing the size and shape required. A limited number of blank cartons can then be made up and tested on the filling and sealing machines to make sure they fit properly.

Fibre Pails and Drums

Fibre pails are used extensively by the manufacturers of candy, bakers' supplies and bulk drugs, sugar grinders, spice grinders, coffee roasters, salted nut roasters, etc.

The value of the fibre drum for the bulk shipment of food products, dyes, colors and chemicals has been demonstrated as far as the protection of the contents is concerned, and because fibre drums do not warp, shrink or dry out, the protection continues while products are in manufacturer's warehouse, in transit and also in the consumer's hands.

The use of fibre drums has also been developed for the shipment of lard, petrolatum, transmission greases, cup greases, oil silks and similar semi-solids that have an oil base. They have also been developed for tooth paste, adhesive paste, marshmallow whip and other products of a semi-solid or plastic nature which have a water base. Fibre drums are used for their cleanliness which is desirable for food products and chemicals. They are also used for their convenience in handling and for the full open top which allows free access to the contents.

In addition to the protection which they give their contents and the convenience with which they are handled, fibre drums are being used more and more for the advertising value of their exterior. Being straight-sided and smooth, and having a naturally fine appearance, they lend themselves to attractive display labels and enable the shipper of products in bulk to apply the same merchandising principle to the bulk shipment that has been so successfully demonstrated to be profitable in the presenting of his retail packaging.

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Specifications—Cartons and Display Containers

By ARTHUR J. WEISS

Robert Gair Company

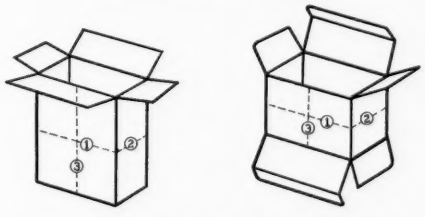
Due to the lack of uniformity or standard method of specifying the dimensions of a folding carton, causing frequent misunderstandings and errors in the Industry, the Paperboard Industries Association adopted at a meeting, held on May 21, 1930, a simplified standard for stating the three dimensions of a folding carton.

Shown below are diagrams indicating, by number, the sequence in which specifications are to be presented, thus, in the case of either carton or counter display container, the following will apply:

1. The larger dimension at the opening.
2. The smaller dimension at the opening.
3. The third remaining dimension.

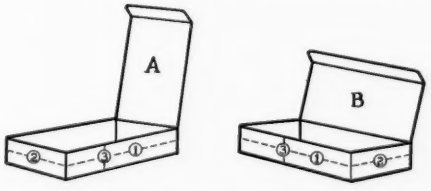
All measurements are understood to be from center of crease to center of crease.

SEAL END CARTON
REVERSE TUCK CARTON



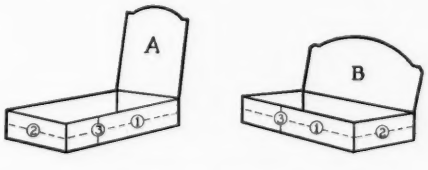
ONE PIECE BOXES WITH COVERS

State whether or not cover extends from first or second dimension. (That is, whether like A or B.)



DISPLAY CONTAINERS

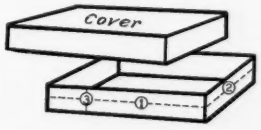
State whether or not display panel extends from first or second dimension. (That is, whether like A or B.)



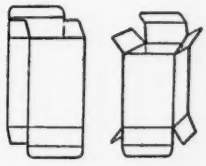
Adherence to this rule will greatly facilitate mutual understanding and tend to make a uniform system.

TWO PIECE TELESCOPE BOX

In two piece boxes dimensions of bottoms are given.

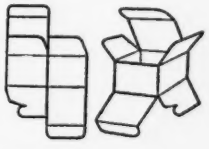


REVERSE TUCK CARTON



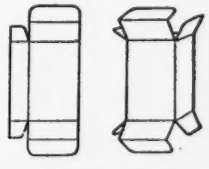
Popular style for low-priced candies, toilet and pharmaceutical articles, extracts and other products. Easily set up by hand, and may be packed automatically. Conveniently opened and closed for removal of contents, as used. Economical in manufacture because cartons interlock.

REVERSE TUCK CARTON WITH ARTHUR LOCKS



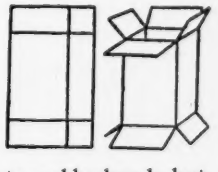
Same as reverse tuck, except bottom side flaps lock to prevent heavy contents from falling through bottom. Used principally for packing jars and bottles containing toilet preparations, medicines, condiments, and other heavy articles. Sometimes made with Arthur side locks both top and bottom, to hold flat round jars and similar objects securely.

STRAIGHT TUCK CARTON



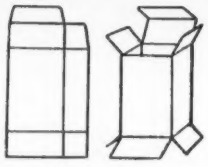
Has no advantage over the reverse tuck carton except that it is required for operation on some automatic machinery. Must be made with right and left glue seams to secure the economy of interlocking in manufacture. This is not desirable because on half of a run of cartons the rough edge of the glue seam shows at the front of the box.

SEAL END CARTON



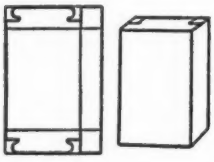
The most popular style carton for packing flour, cereals, sugar, salt, teas, coffees, spices and many other food products, soap powders and other cleansing preparations. Difficult to seal by hand; but packed and sealed on automatic machinery, it reaches the consumer with the contents untouched by hands.

SEAL BOTTOM, TUCK TOP CARTON



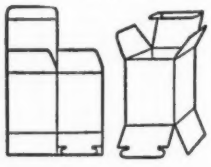
Handy as a pocket package for cough drops and small candies. Has the advantage of the solidly sealed bottom and the convenience of the easily opened and closed tuck top for the free use of the contents. Packed on automatic machinery. Not adapted to hand packing.

GREENLEAF CARTON

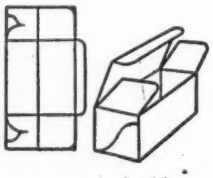


Locks at each end securely. Extensively used for packing dried fruits and other heavy or bulky food products; also as shelf containers holding individual packages in sales units.

TUCK TOP, GREENLEAF BOTTOM CARTON

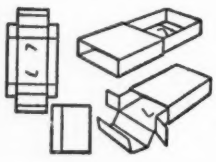


An adaptation of both styles, permitting the security of the greenleaf lock on the bottom and the convenience of the easily opened and closed tuck top. Used for the larger candy packages, heavy food products, shelf containers and many other purposes.



COLONIAL LOCK BLANK

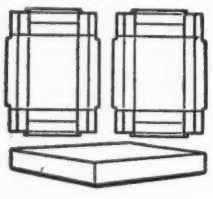
A folding blank, supported when set up by interlocking hooks and catches, requiring no gluing either by the box manufacturer or the user; very economical because of sheet layout. In universal use of biscuit and cracker manufacturers and is generally enclosed in a sealed, printed wrapper.



TUBE AND SLIDE BOX

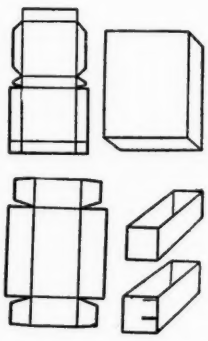
Consists of a folding blank variously contrived, to be inserted in a tube. Its two-piece construction makes it substantial enough to be carried without damage in the pocket of the consumer. It permits the easy removal of one article without spoilage of those remaining. It is extensively used for cigars and cigarettes.

TWO-PIECE PROSPECT BLANK



Two-piece box made up of blanks folded by hand. The ends overlap and are held against the side by friction. The cover may be made full or part depth and the blank glued at the side affords additional reinforcement, a recent development of the overlapping end blank in which an extra tab is provided as an extra protection at the corner. A similar reinforcement along the sides can be provided without the necessity of preliminary gluing. This style is the most recent development of the hand assembled telescope box. It has many decided advantages in the textile industry, where it may substitute for a solid box.

BRIGHTWOOD BLANKS

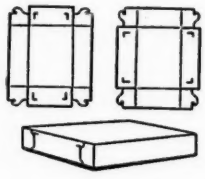


Brightwood machinery is installed in the user's plant for the sake of setting up and gluing two styles of blanks.

The one-piece blank is folded and automatically glued along the vertical panels by a carton forming machine, which automatically fills and seals it. It is necessary for the user to have sufficient production to gain the economies made possible by the automatic equipment.

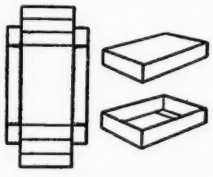
The two-piece style machine is fed blanks which are automatically glued into box and cover. The types are various—the cover may fit over the box to its full length, or only part way.

TWO-PIECE HOOK CATCH BLANK



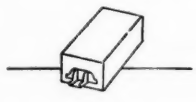
An economical style of telescope box, in which hook catches at the four corners hold the box and cover in place; very economical to manufacture, but difficult to set up. This style is not sufficiently durable to stand transportation or rough handling, but is a particularly suitable box for the clothing and florist industries.

TWO-PIECE FULL TELESCOPE OVERLAPPING ENDS CARTON



A good substitute for a solid box—is economical to manufacture, easily set up by hand, and makes a very neat, substantial package. It is used very frequently for candies, also for dry goods, clothing, etc.

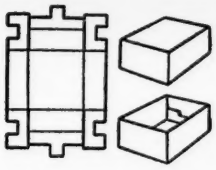
POURING SPOUTS APPLIED TO SEAL END CARTONS



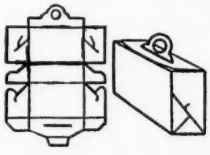
There are a number of different devices applied to the top panel of an ordinary sealed carton to permit of easier access to the contents, but one of the most unusual is the one illustrated. The pouring spout is fashioned from the top flaps of the carton, and when properly operated by the housewife, is formed into a spout which may be opened and closed at will. Patented.

XUM

TWO-PIECE OVERLAPPING BOLT END BOX



This box is very secure. It is used extensively for packing hardware and other heavy matter where the added strength of the full telescope feature is desirable.



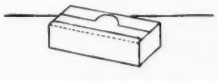
THE SATCHEL PACKAGE

A folding blank similar to the Colonial lock blank, which is held together by interlocking hooks and catches fitting together on the side panels. This box has the additional feature of a patented tongue and a handle which helps to secure the cover and economically substitutes for the tape formerly used.

TRANSPARENT CELLULOSE WINDOWS APPLIED TO ORDINARY CARTONS

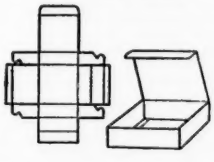
Manufacturers of candies, cakes and other products usually bought on sight are desirous of having their folding cartons made with a window to reveal the contents. Formerly, gelatine was used, but of recent years transparent cellulose has made rapid strides and is often used in its place.

BROAD-WAY OPENER BOX



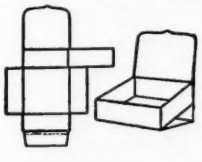
A new development in cartons that permits of inexpensive automatic filling through the ends of the cartons after which the ends are sealed and the box is opened the broad way, hence the name. This box may be also finished to form a counter display container without impairing the economical filling operation. Patented.

ONE-PIECE OVERLAPPING END AND FRONT AND DISPLAY BOX



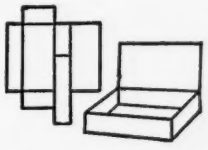
Economical to manufacture and extensively used for display purposes, this box has the added strength of the overlapping front which is not provided in the straight front box. The box can be made with panel-fold style display top, making possible the economy of printing on one side only.

TINSLEY COUNTER DISPLAY CONTAINER



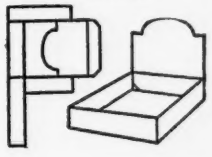
A box of patented design, so contrived that the cover, folding under, proves an easel support to display the goods. A remarkably successful type of display box because of its simplicity in construction, its ease in setting up, and because it has sufficient strength to act as a combination carrying and display box. It is susceptible to fine printing, required on one side only. The display panel is held at the proper angle by a supporting flap. Much of the universal success of this box is due to the fact that it is easily converted from a carrier to a display container by the retailer.

CLIMAX COUNTER DISPLAY CONTAINER



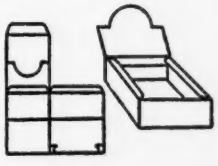
Very simple to set up. Lies flat on the counter. A protective cover is necessary, making the box more expensive than the panel-fold which has no cover. Requires printing and coating one side only. Display panel is equipped with supporting flap.

PANEL-FOLD COUNTER DISPLAY CONTAINER



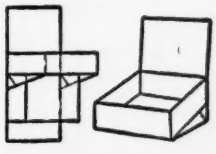
Simple in construction and setting up. Cover is so arranged as to make an attractive display panel. Protective cover is optional. Stands flat on the counter. Requires printing and coating one side only.

PANEL-FOLD CONTAINER WITH LOCK BOTTOM



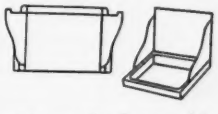
Similar in general appearance to the panel-fold, except that the locking device is on the bottom. This makes possible gluing of box on automatic machinery, with resultant speed and economy.

SIMPLEX COUNTER DISPLAY CONTAINER



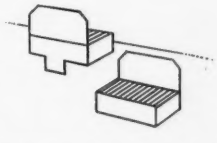
Simple to set up. Special easel feature permits tilting at different angles. Principal feature is simplicity with which dealer may display the goods at an angle. Protective cover is necessary. Requires printing and coating one side only. Display panel is equipped with supporting flap.

FIVE PANEL COUNTER DISPLAY CONTAINER



Old established style still in limited use. Requires printing two sides and coating two sides. Somewhat difficult to fill, since the packer must insert goods from side. Lies flat on the counter. Display panel is equipped with supporting flaps.

TILTING DUMMY DISPLAY



Excellent for perishable articles, like cheese and butter. Shows replicas of the individual packages, but does not hold any goods. Automatically set up by dealer as he places in the side tucks, an economical and attractive display.

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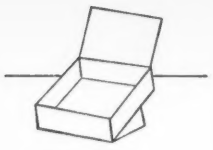
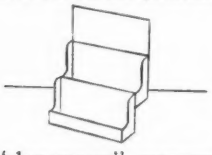
ROSE DISPLAY CONTAINER



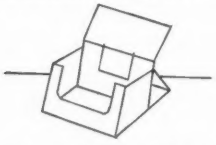
A very effective blank and one of the leading types of display containers. The cover section forms an easel, and is very readily transformed from a shipping box to a tilted display box by the storekeeper. It does, however, require printing on both sides of the board.

SKYSCRAPER (BROKEN BACK)



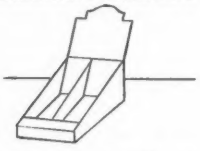
A recent addition to the field of counter display containers which displays contents in two tiers and stays on the counter in an upright or "skyscraper" manner rather than the familiar long horizontal shape. Some are made with an easel in the rear to hold the second tier in a raised position. Patented.

DARRAGH DISPLAY CONTAINER



Another recent addition to the display container field, the main feature of which is that the contents when loaded for shipment are in an upright rectangular position, but when the box is set up for display, the contents are thrown to a stacked position and make a very attractive appearance on the counter. Also, the box is so constructed that the display panel is held in a certain position more or less rigidly and does not flop forward or backward as do so many containers.

GAIRWAY DISPLAY CONTAINER



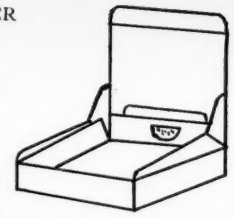
An effective new type of display container in which the individual contents are packed in a staggered manner for better display. Particularly useful for fragile packages put out in glassine bags. Very easy for the dealer to sell, and the contents are kept in tidy position while on the display counters. Patented.

DISPLAY DISPENSER

A new departure in counter display containers. Instead of the conventional type of display container which shows goods on display with the display panel in the rear, this container has the display panel part way back. In front of the display panel appear several of the articles on display (see left illustration).

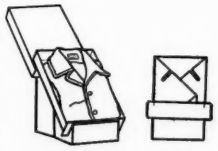
The bulk of the product is packed *behind* the display panel (see right illustration) making for convenience of the store clerk. The unsightly appearance of half-filled containers is avoided. This container is always orderly until the last package is sold.

BROOKS' DISPLAY CONTAINER



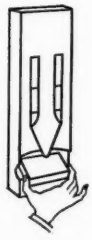
A counter display box complete in itself; that is, no protective cover is necessary. The box is equipped with a tab at the rear of the goods which the dealer elevates and secures in the rear panel. This throws the goods on display to a desirable angle.

BETTER-VIEW DISPLAY STAND



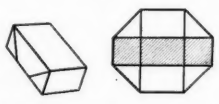
A simple collapsible contrivance used for counter or window display of a two-piece telescope box. Usually made so it will fit within the box. When erected it shows the bottom with the contents showing at an angle, and the cover behind it. The cover is used as a display panel. Makes a most effective window display at little cost. Illustration on left shows the stand in use; illustration on right shows it collapsed for shipment.

SELF-SERVICE CONTAINER



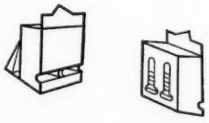
This high, narrow type of container, designed to occupy the minimum of space on especially crowded counters, utilizes the same "automatic" vending machine principle which piles up a single row of packages, providing an opening at the bottom through which a package may drop or be withdrawn. Fits into odd nooks or corners, or may be hung from a nail on a shelf.

TWO PIECE FULL TELESCOPE COLLAPSIBLE BOX



These boxes are glued in collapsible form and shipped to the user in that manner. The user merely pulls them open and the boxes are then ready to be filled. The illustration on the right shows the box in collapsible form, as it is shipped; and the illustration on the left shows the box after it has been set up and filled. The great advantages of this box are that no setting up machinery is required and it is inexpensive.

GRAVITY DISPENSER



Another type of dispenser which can be equipped with separate dividers when two or more rows are desired for a greater advertising surface. This container can be designed to any desired tilt, and can also be equipped with an easel when the container becomes topheavy. The container also has a sales thermometer in the rear to show when to refill and also to aid in serving from the rear.

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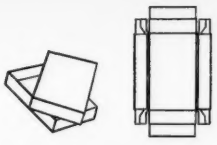
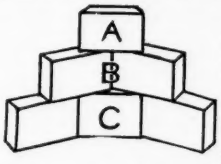
TWO PIECE FULL TELESCOPE BOX



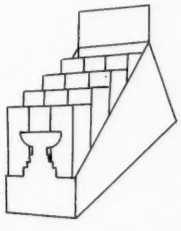
A comparatively recent and important addition to the types manufactured by the folding box industry. Its particular advantage is that it is shipped to the user's plant in flat, knocked-down form and set up by the user at his will. The transportation and storage of empty set-up boxes is obviated, and many progressive manufacturers are turning to this type of box. The corners are particularly strong and the box can withstand a great deal of stacking stress. It is made with reinforced side and end walls in a variety of types. This box is set up on automatic machines, or on hand setting-up machines. The illustration on the right shows a blank in knocked-down form as it is shipped to users; and the illustration on the left shows the box after it has been set up on the machine.

GIANT PYRAMID WINDOW DISPLAY DUMMY



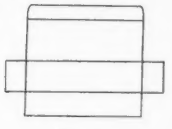
An effective window display in pyramidal form made up of three folding boxes: A, B and C joined together. Distributed in knocked-down form. Easily erected and very stable. The whole unit may be moved from one position in the show window to another without disturbing the form of the display in any manner.

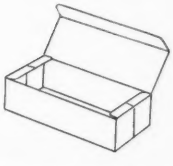
RHOMBOID DISPLAY CONTAINER



A novel display container and shipping unit. The sloping sides and special construction permit of displaying the goods in slanting tiers presenting a novel effect. Provided with a protective sleeve, it may be shipped packed in set up form ready for display. Especially well adapted for the display of tube or bottle cartons and similar small packages.

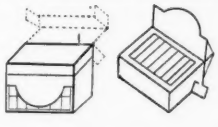
ONE PIECE COLLAPSIBLE CONTAINER





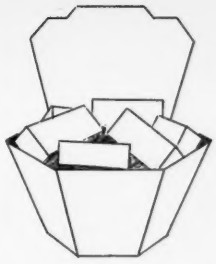
A simple one-piece container serving as a carrier especially useful where quick set-up and economy of cost are factors. It is, of course, shipped to user in knocked-down form as shown in top figure. Below is shown the container set up ready for use. Well adapted for small packages.

WHITEHEAD DISPLAY



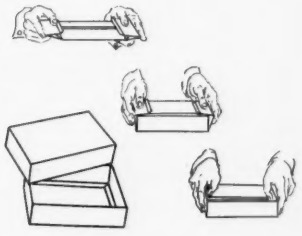
Serves as display and shipping container for twelve cartons. Closed position shown at right, display position at left. Panel is lifted and folded back; notches inserted in slits obtain slanting effect. Display on top panel and sides. Patented.

BASKET DISPLAY



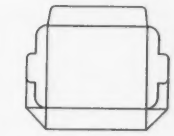
A container designed primarily for floor or counter display. It does not serve as a shipper but is easily set up by dealer, with the contents in a pleasing disorder. Especially well adapted for the display of small packages for quick sales.

TWO PIECE F. T. SIMPLEX



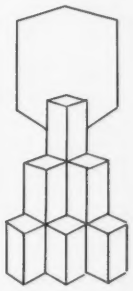
A two piece container shipped flat in knocked down form. They are easily and quickly assembled for use as required by a simple hand operation as illustrated. The set up package results in a rigid container with unusual strength due to the double wall construction.

ONE PIECE COLLAPSIBLE BOX



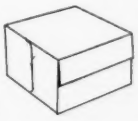
A one piece cover type of container shipped in flat form. It is quickly and easily set up ready for use. The slots permit of locking in the cover making this style especially well suited for baked goods and similar products. The use of a transparent cellulose window in the cover adds an attractive feature.

PYRAMID DISPLAY



An advertising unit only, designed to replace the actual carton or package. The pyramids are shipped flat and may be easily set up by the dealer and present an unusually attractive feature for window display.

ICE CREAM CARTON



A new advancement in ice cream packaging. A folding type of carton embodying several attractive features. The construction of the lock ends render the box liquid proof eliminating the need of liners. It may be neatly and easily opened through the use of a special flap (see illustrations). The omission of the liner reduces the freezing time.

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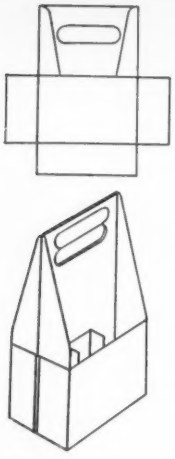

BOTTLE CARRIER

A sturdy container designed to carry six beverage bottles. It serves both as a display unit and with the handle makes a splendid "carry home" package thus promoting the sale of the six bottle unit.

Diagram above shows the carrier as it is received from the manufacturer. Diagram below shows carrier set up ready for use. (Patented.)

Artificial Leather for Boxes

One of the types of fabrics from which good results can be expected is artificial leather. This is a standardized material, the base of which is cotton fabric, to which is added a coating of pyroxylin. It is pliable, fairly tough, moisture-proof, greaseproof and practically stain-proof inasmuch as it can be washed. This washable quality is important in the manufacture of boxes which are distributed to retailers for sale, display and stock, inasmuch as artificial leather does not scuff from handling and if it becomes soiled can be restored to its original newness by wiping with a moistened cloth.

Artificial leather is made up in single color, two colors or in many color effects, which are further embellished by embossings ranging from the grains of leather to floral, modernistic or geometrical designs. It can be made in a dull or a bright finish in all colors, or any of the metallic shades.

Artificial leather is not by any means new to manufacturers of boxes. It has been used considerably for de luxe or gift boxes by many national advertisers for an entire range of products; the color, the pattern and the weight of the fabric being determined by the type of container designed. Artificial leather is as workable as any of the better papers and has been successfully used in producing boxes simulating the appearance of leather cases, treasure chests, bound volumes, or any of the more conventional forms.

Wooden Boxes as Packages

A wooden box possesses strength and, properly constructed, incorporates most of the structural elements of the successful package. In re-use it is particularly valuable for even a comparatively small box can be utilized as an ideal cigarette humidor or a container for studs, cuff links and many other small articles after its original contents are gone. With the application of certain decorative effects to the outer and inner surfaces of the box, it can comply to all of the essentials of the attractive as well as the practical package.

In the lining of these boxes decorative and imitative papers are used, also fabrics such as velveteen and silk, and these are selected with the idea of obtaining harmony or contrast with the exterior design or coloring. Likewise, strap or brass hinges, locks, clasps and other small appurtenances are applied to the boxes and add to their effectiveness and attractiveness. Partitions, as well as removable compartments, may be placed in the original boxes as they are supplied to the purchaser or after the contents have been removed.

Wooden boxes have long been used and highly regarded as containers by several of the packaging groups because of their strength and durability. But with the possibilities offered for the application of color and design to wooden boxes there is a renewed interest on the part of the manufacturer who seeks effective and economical containers.

Crepe Wadding

Crepe wadding is extensively used as a packaging adjunct in the packing of tablets, capsules, ampoules, and various pharmaceuticals, cosmetics, bottled goods, scientific instruments, fragile and highly polished specialties. Such wadding to meet the several requirements should be white, soft, of dependable consistency in thickness and grade and be highly absorbent. Crepe wadding absorbs sixteen times its own weight in moisture. It may be obtained in rolls, sheets, and pads.

For liquids sampling or shipping liquids by mail, domestic and export business, to meet the requirements of the Postal Regulations and the necessities of protection in a high degree, absorbent crepe wadding is an ideal packing.

This material, provided in various thicknesses and paper backed, ready for use, is also utilized for box top padding. Among the economies which have been pointed out by companies who have used this padding are the following: due to the paper backing and the flatness and uniformity of sheets, it can be readily jogged in a cutter, while most padding has to be laid out separately, each sheet at a time; the paper backing eliminates the need of placing a padding and a manila sheet on separately when they are applied at the wrapping machine.

Two developments in crepe wadding, of interest to the designer and buyer of packages and supplies, have occurred within the last two years. First a new form fancy corrugated wadding has come on the market. Secondly, colors in both the plain and corrugated types. Both developments increase the adaptability of these products from a decorative standpoint to modern requirements in packaging and are bidding for increasing importance.

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Nomenclature of Set-up and Folding Boxboard

Boxboard as used in the commercial lines is divided into two classes: set-up boxboard and folding boxboard. Both products are manufactured on the same machine, the difference being that created by the raw materials used in each in the process of manufacture. Briefly the two products may be described as follows:

Set-up Boxboard. The commonest form of set-up boxboard is known as chipboard. Next in quality is newsboard. These are the two basic boards for practically all ordinary set-up box work. Chipboard is made from mixed papers commonly known as paper stock. Solid newsboard is made from newspapers and is therefore a cleaner and more uniform product. Newsboard is also made with a chip center, but to outward appearances it is still newsboard.

These boards are packed in 50-lb. bundles, and the thickness of each sheet is dependent upon the number of sheets in the bundle. However, both chipboard and newsboard may be ordered in various finishes; for instance, both products are sold in a dry finish and water finish, the dry finish meaning the surfaces are free from a high finish, and the thicknesses are termed rough, medium or two-dry and three-dry. In the water finish they run 2, 3 and 4. The two-water finish is not necessarily a smooth board; the three-water finish is considerably smoother, and the four-water finish is about the smoothest that chip or newsboard is made.

Folding Boxboards may be classified as follows:

Bending chipboard is made of mixed papers, but the two surfaces contain fibrous products, such as manila clippings, jute liners and old corrugated boxes. This is the commonest form of bending board.

Next is single manila, which is either a chip or a newsboard with a percentage of unbleached sulphite on one surface, thus making this surface a cream color bending board. Next comes bleach manila with either chip or news back, the surface being made from soft white shavings and bleach sulphite stock. The sulphite produces the bending quality.

Patent coated is produced with a news-back, the surface being made from hard white shavings and bleach sulphite. This board is used for higher grade folding boxes, either printed or lithographed.

Folding boxboards are made on a water finish, and are produced on a basis of from 1800 to 2200 points per bundle, according to the finish required. In the very common grades of folding boxboard for suit boxes and shipping containers, there is the mist board which is practically a single manila lined furnish, except for the mist colors, which can be made according to specifications.

There is jute lined board, which might have a chip back and the brown surface is produced from the use of boiled wood, and finally container board, which runs 60-, 80- and 100-points. This board is a chip center with a 16-point jute liner pasted on either side.

Definitions and Rules for Figuring Boxboard

The following definitions, rules and tables for figuring boxboard supplement the information as given above under the heading of "Nomenclature of Set-up and Folding Boxboard" and also referred to elsewhere in the PACKAGING CATALOG.

Bundle: A bundle of boxboard is a standard package of same weighing 50 lbs. The weight of a bundle does not vary.

Number: The "number" of board indicates the number of sheets, size 26 x 38 in., in a bundle weighing 50 lbs.

Count: By "count" is meant the number of sheets of any size in a bundle of 50 lbs.

Regular Size: The regular or standard size of all grades of board, except patent coated and solid manila, adopted for the United States, is 26 x 38 in., containing 988 sq. in. The regular or standard size of patent coated and solid manila board is 24 x 36 in., containing 864 sq. in.

Regular Number: The regular number indicates the number of sheets, 26 x 38 in. in size, in a bundle of 50 lbs.

To Determine Count of Odd Size Sheets: If not sure of the regular number of the board desired, determine same by gauge list. Divide the number of square inches in a bundle of the regular number desired, by the square inches in the special size sheet desired, and the result is the "count" or "number" of the special size desired.

To Determine Regular Number of Any Special Size: Knowing the count of the special size, multiply the square inches in special size sheet by the

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count, the result being the square inches in the bundle. Divide the square inches of the special size by the square inches in a regular sheet (26 × 38 = 988), and the result is the "regular number."

Basis of Gauge Lists: The size referred to in all the gauge lists, excepting patent coated and manila boards, is the regular size 26 x 38, containing 50 lbs. to the bundle. The gauge list and ream weights of patent coated and manila boards are based on the ream, 24 x 36, 500 sheets.

GAUGE LIST NO. 1 FOR PLAIN STRAW AND PLAIN CHIPBOARDS

Solid jute, dry finish; filled wood pulp; filled newsboard, single news vat lined chip and single white vat lined chip

Basis 26 x 38 in.	No. 1 Finish Thick to No. 2 and Rough	No. 2 Finish Medium	No. 3 Finish Thin to No. 4 and Smooth	No. 4 Finish Extra Smooth
No. 35	0.064	0.060	0.057	0.051
" 40	.056	.053	.050	.045
" 45	.050	.047	.045	.040
" 50	.045	.042	.040	.036
" 55	.041	.038	.036	.033
" 60	.038	.035	.033	.030
" 65	.035	.032	.030	.028
" 70	.032	.030	.028	.026
" 75	.030	.028	.027	.024
" 80	.028	.026	.025	.023
" 85	.026	.024	.023	.022
" 90	.025	.023	.022	.020
" 95	.024	.022	.021	.019
" 100	.022	.020	.019	.018
" 110	.020	.019	.018	.017
" 120	.018	.017	.016	.015
" 130	.017	.016	.015	.014
" 140	.016	.015	.014	.013
" 150	.015	.014	.013	.012

GAUGE LIST NO. 2

For cracker shellboard; plain shellboard, colored one side, colored boxboard, chip back; colored boxboard, chip center; news back; any combination board with solid news back; any combination board with solid wood back. Single manila lined chip; single manila lined chip center, news back; bleached manila lined chip; bleached manila lined chip center, news back; double manila lined chip and manila colored shell; colored suit boxboard, chip back; colored suit boxboard chip center, news back; mist colored suit boxboard, chip back; mist colored suit boxboard, chip center, news back. Test jute; test chipboard; jute lined chipboard; jute lined chipboard, news back; imitation jute; filled jute (chip center) solid jute (bending).

Basis 26x38in.	No. 1 Finish Thick to No. 2 and Rough	No. 2 Finish Medium	No. 3 Finish Thin to No. 4 and Smooth	No. 4 Finish Extra Smooth
No. 40	0.050	0.047	0.045	0.043
" 45	.045	.043	.041	.038
" 50	.040	.038	.036	.034
" 55	.037	.035	.033	.031
" 60	.034	.032	.030	.028
" 65	.031	.030	.028	.026
" 70	.029	.028	.026	.024
" 75	.027	.026	.024	.023
" 80	.025	.024	.023	.021
" 85	.024	.023	.022	.020
" 90	.023	.022	.020	.019
" 95	.022	.020	.019	.018
" 100	.020	.019	.018	.017
" 105	.019	.018	.017	.016
" 110	.018	.017	.016	.015
" 120	.017	.016	.015	.014
" 130	.016	.015	.014	.013
" 140	.015	.014	.013	.012
" 150	.014	.013	.012	.011

GAUGE LIST NO. 3

For solid news and solid wood pulp board

Basis 26 x 38	No. 1 Finish Thick to No. 2 and Rough	No. 2 Finish Medium	No. 3 Finish Thin to No. 4 and Smooth	No. 4 Finish Extra Smooth
No. 40	0.063	0.060	0.055	0.050
" 45	.056	.054	.050	.045
" 50	.050	.048	.044	.040
" 55	.046	.044	.040	.036
" 60	.042	.040	.037	.033
" 65	.039	.037	.034	.031
" 70	.036	.034	.031	.029
" 75	.033	.032	.029	.027
" 80	.031	.030	.027	.025
" 85	.029	.028	.026	.023
" 90	.028	.026	.024	.022
" 95	.026	.025	.023	.021
" 100	.025	.024	.022	.020
" 110	.022	.021	.020	.019
" 120	.021	.020	.019	.018
" 130	.020	.019	.018	.017
" 140	.019	.018	.017	.016
" 150	.018	.017	.016	.015

GAUGE LIST NO. 4

For pasted chipboard

Basis 26 x 38 in.	No. 1 Finish Medium	No. 2 Finish Thin to No. 3 and Smooth	No. 3 Finish Extra Smooth
No. 10	0.212	0.200	0.180
" 15	.142	.133	.120
" 18	.113	.111	.100
" 20	.106	.100	.090
" 22	.096	.090	.082
" 25	.085	.080	.072
" 28	.076	.071	.064
" 30	.070	.067	.060
" 35	.060	.057	.051

GAUGE LIST NO. 5

Container board

Basis 26 x 38 in.	No. 3 Finish	Test
No. 15	.120	300 lbs.
" 18	.100	275 "
" 23	.080	200 "
" 29	.060	175 "

Furnished in 2, 3 or 4 ply pasted and conforms to railway and express requirements.

GAUGE LIST NO. 6 AND REAM WEIGHT TABLE

For patent coated, chip back; patent coated, news back; patent coated, news center, manila back; patent coated, solid manila back; patent coated, blue back; solid manila board.

Caliper Thickness	Basis 500 Sheets 24 x 36 (864 sq. in.)	Basis 500 Sheets 25 x 40 (1000 sq. in.)
0.011	154 lbs.	178 lbs.
.012	168 "	194 "
.013	182 "	210.60 "
.014	189 "	217.60 "
.015	195 "	225.69 "
.016	208 "	240.70 "
.017	221 "	255.78 "
.018	230 "	266.20 "
.019	238 "	274.88 "
.020	245 "	283.56 "
.021	252 "	291.66 "
.022	264 "	305.55 "
.023	276 "	319.44 "
.024	288 "	333.33 "
.025	300 "	347.21 "
.026	312 "	361.10 "
.027	324 "	374.99 "
.028	336 "	388.88 "
.029	348 "	402.77 "
.030	360 "	416.65 "

Furnished wrapped in reams or half-ream bundles.

XUM

Tight Wrapped Packages

By CARL E. SCHAEFFER

Stokes & Smith Company

The tight wrapped package is now a standard type of package with many manufacturers and packers of food and grocery products. This type of package was first adopted a number of years ago by some of the cereal manufacturers, where its greatest advantage was in keeping the weevil from getting into the contents. This style of package proved so satisfactory for cereals that it has been adopted for use with many other products, such as flour, soap powders, salt, coffee, etc.

Various types of cartons with inside bags or liners can be used with the tight wrapped package, as well as different types of opening devices. In the salt industry the tight wrapped package is now being used by many of the leaders, and one of the most satisfactory salt packages is a carton made of asphalt-lined board which is tight wrapped on the outside. For coffee, wax or parchment paper liners are generally used on the inside of the carton and the cartons are tight wrapped on the outside. For flour, the regular chipboard carton is used and some of the packers have these made with a blue lining on the inside which gives a whiter color to the flour. Various combinations of cartons, liners, and labels can be used to insure the product getting to the consumer in the best possible condition.

Another advantage of the tight wrapped package is for the packer or manufacturer who packs private label brands for different customers. If he uses the tight wrapped package he can use the same carton and merely have different labels for the different brands. This means a saving as it is not necessary to carry a number of different printed cartons on hand. With the tight wrapped package various types of labels giving different styles of end folds can be used to suit the conditions. Some labels are die-cut so that each end flap of the label is glued down separately. Others are rectangular, making a gusset fold on the end.

The machines for tight wrapping packages are built in different styles and types to suit the conditions. There is a semi-automatic machine which is hand fed and adjustable for different sizes and has a production of 10 to 15 tight wrapped packages per minute. Then there is the fully automatic machine usually built for one size package to be wrapped and has a production of 60 to 70 tight wrapped packages per minute. One of the principal advantages of the fully automatic tight wrapping machine is the great saving in labor. In one of the large cereal mills there were employed 75 to 100 girls hand wrapping packages. Two automatic machines and five people replaced this hand labor and in addition the customer obtained a better and tighter package.

With the tight wrapped package the plain unprinted cartons are filled and sealed in the regular way, there being a number of different makes of semi-automatic and full automatic carton filling and sealing machines on the market. After the carton is filled and sealed it is fed into the tight wrapping machines which automatically feed the paper labels as the cartons enter the wrapping machine, glues the labels all over on the blank side with a thin coating of adhesive and wraps it tightly around the filled carton, making a perfectly tight sealed, non-sifting, weevil-proof, and attractive package. This package costs practically the same as or possibly a little more than the printed cartons, but there are so many advantages in the tight-wrapped package which more than offset any slight additional cost. Some of these advantages are:

Better appearance of the package, stimulating sales. Printed or lithographed colors show up to better advantage on paper labels than when printed directly on cardboard.

Greater strength. The wrapper glued tightly to the carton strengthens the package, especially at the corners where there is generous overlapping of the paper.

Better preservation of contents. The contents of the package are fully protected against dust, odors, weevils, etc., and there is no loss from leakage or sifting so that the package and its contents reach the consumer in perfect shape.

Uses of the Paraffined Carton

By M. DALE OGDEN

Paraffined containers are being used extensively every year for packaging butter, ice cream, oleomargarine, meat products, nuts, etc., because of a definite service that waxed cartons perform for these and like products. An outstanding example is shown by the increased sale of print butter in paraffined cartons. To one not conversant or directly concerned with the uses of the paraffined container, the thought that first comes to mind is of the butter and ice cream cartons. It is (*Continued on page 50*)

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Set-up Paper Boxes

By HOWARD P. BECKETT

National Paper Box Manufacturers Association

The set-up paper box is so called because it is completely fabricated and "set-up" by the paper box manufacturers, whereas other types of paper board containers, such as cartons and folding boxes, are delivered "knocked-down."

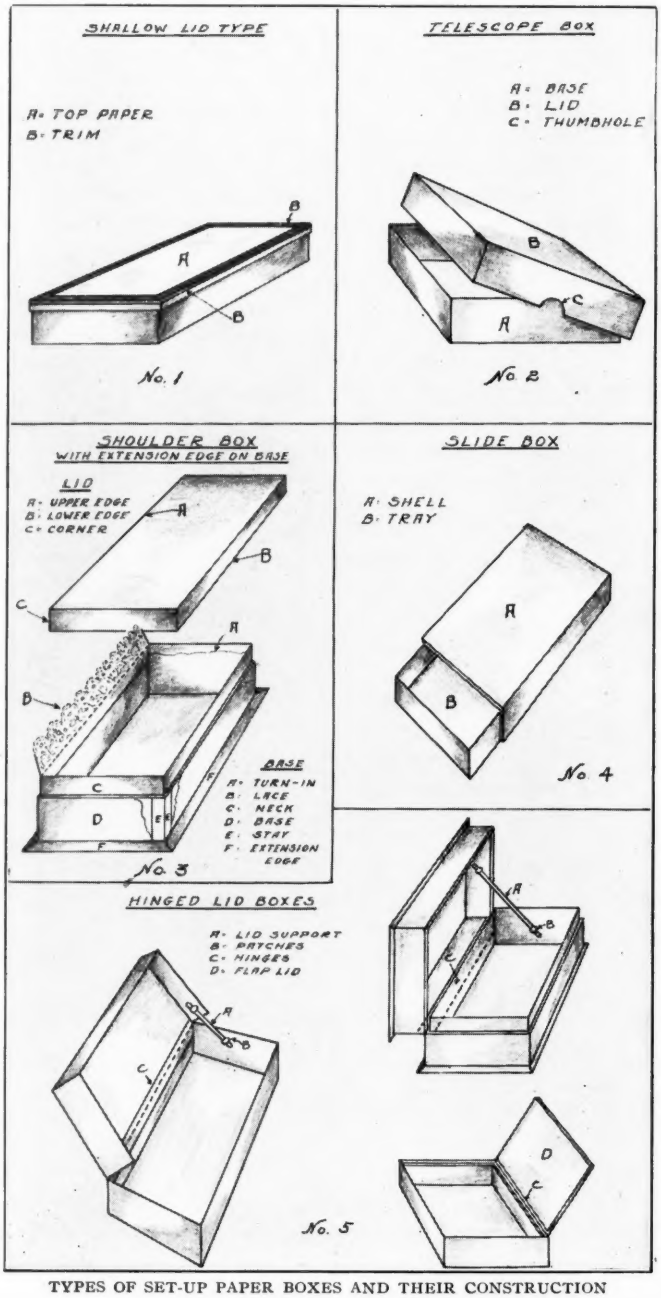
The set-up paper box differs from other paper board containers because it is made from paper board, covered with paper or some other material, whereas the folding box consists of board processed for printing or lithographing. The rigidity of set-up boxes is inherent, the paper board used being specially made to prevent warping. This board is scored, bent at the scorings and the corners reinforced with kraft stay paper. It is then covered by various processes, depending upon the size or shape, with paper or other cover material.

Set-up boxes, because of their adaptability to size, shape and decoration, represent the highest type of paper box development. Combining the utility factors of content's protection, neat storage, with an aesthetic appearance value, they are durable and strong. They afford an attractive container for products not immediately consumed, such as candy, stationery, cosmetics, hosiery and the like. They are sales-begetting, in that they encourage the packing of multiple units, such as two or more pairs of hose, neckties and handkerchief sets, cosmetic products, sheets and pillow cases, towels, etc. They have become synonymous with gifts, creating an atmosphere of elegance and evidencing the thoughtfulness and attention to detail, given by the manufacturer or the person using them.

They may be built with trays, platforms or divisions, and thus further embellish or display the contents. They are easily opened, permitting examination of the contents.

It might be thought from the above comment that the cost of the set-up box would prohibit its wide use. Such is far from the truth. Modern equipment and box manufacturing ingenuity make the set-up box comparable in cost with any type of container, notwithstanding its multitude of advantages. Where comparatively small quantities or where various sizes or finishes are desired, the set-up box is the cheapest container to be had.

Indicating the wide choice of finishes, it might be well to mention that there are literally thousands



TYPES OF SET-UP PAPER BOXES AND THEIR CONSTRUCTION

of patterns and colors of fancy papers available for the exterior or interior finish of the box. Likewise lithographers specializing in box wraps can conceive and execute any wrap design that the artist prepares. Added to this versatility of finish is the service of the box manufacturer who has at his command experts and specialists in box construction and design.

Set-up boxes especially recommend themselves:

(*a*) When unique, irregularly outlined, curved surfaced, hexagonal, octagonal, heart, round containers are desirable.

(*b*) Where strength and appearance are essential.

(*c*) Where interior packing or platforms are necessary for display or shipping purposes, such as silverware, perfumery, etc.

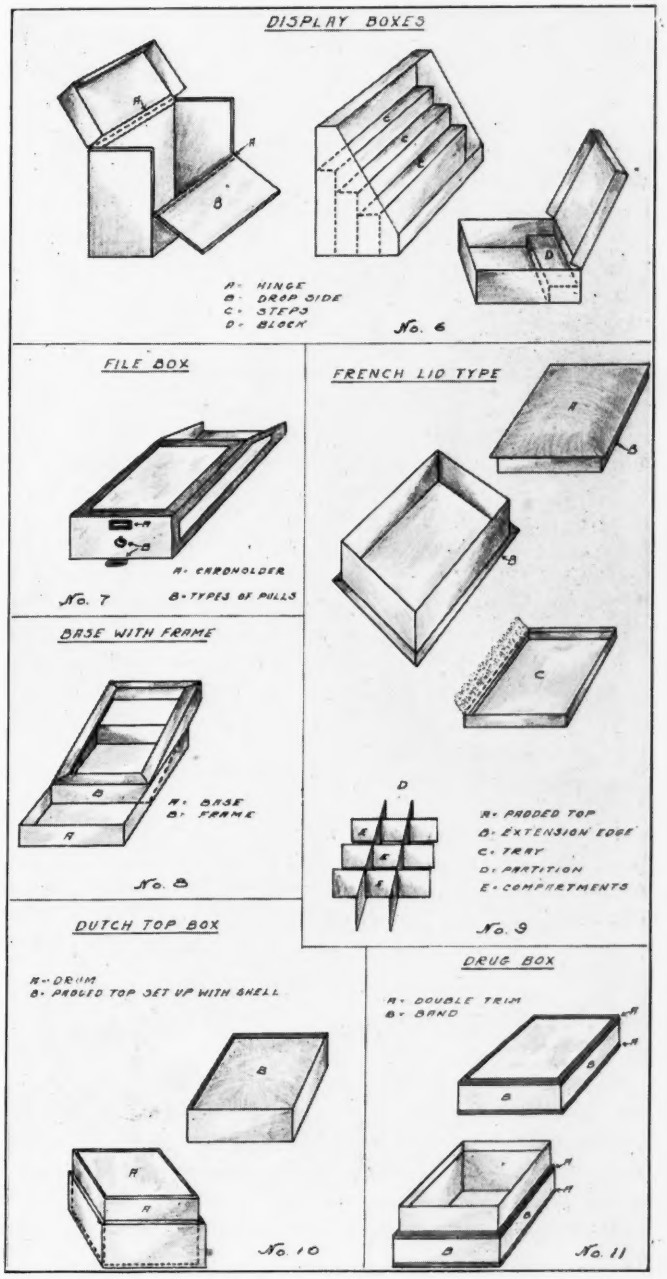
(*d*) Where an atmosphere of quality or the gift sentiment is emphasized.

(*e*) Where a variety of sizes and finishes is sought.

No machinery is needed in closing the box, or in setting it up. The user does not have to do anything except fill it. Set-up boxes are especially adaptable to the manufacturer whose output is small or varies greatly in size, quantity, or combination, or is subjected to seasonal variation.

It may be found desirable to have the container possess a higher degree of utility than appearance, in which case a simple container is manufactured by the process of selecting the proper weight board, staying the corners and covering it with a simple paper. Again, the product may be one which requires the development of aestheticism. In such a case, the box manufacturer is required to prepare a box which is virtually a frame for a picture and must harmoniously set off the product to increase its eye appeal. In this latter case, the box designer has at his command thousands of beautifully designed papers, silks, or lithographs, from which he chooses the cover of the box. By reason of the elasticity of his equipment, he is permitted to construct a container in a multitude of shapes and sizes.

While the cost of the set-up box is comparable with other types of paper containers or wrappings, its actual cost to the manufacturer is frequently lower, for the reason that the selection of the container often removes the product from the level of competition and gives its user a distinct competitive advantage. Within the past year or two, manufacturers of sheets and pillow cases, towels and other textile products have found that attractive sales-begetting boxes more than paid for themselves in stimulating a lagging market. Hosiery boxes covered with suede paper for an individual pair or two or three pairs have given certain manufacturers a decided advantage in recent months. The florist, the jeweler, the department store, every merchandiser who appreciates the possibilities of gift marketing turns to the set-up box manufacturer, who, by reason of his experience and ability to conceive



TYPES OF SET-UP PAPER BOXES AND THEIR CONSTRUCTION

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works of art in three dimensions aids him in up-to-date marketing.

The well-designed set-up paper box is of great assistance in making the sale—it gives the final buying urge—it is the personal introduction of product to purchaser at the place where the sale is made. It is the ultimate advertisement, the follow-through of the advertiser, and as such must contain the elements which mark good advertising. It must attract attention, create desire of possession —and stimulate action—make the sale. Other sales-begetting factors of the good advertiser—the set-up box—are beauty, originality, convenience, the sense of fitness. The size, shape, quality and cost of the box depend upon the product and upon the manner of marketing—the type of retail outlets. A set-up paper box need not be high priced, nor need it be unattractive because of low cost. Boxes are available in beautiful shapes and colors for the expensive specialty shop or the "five and ten." With the boxcrafter, beauty, good taste and economy mingle without apology in the fabrication of the product he makes.

What unit will the public buy? That will determine the size of the container. The shape may be governed by convenience in handling. The shape is important as well as design, for it may become the attention-getting or identifying factor. The convenience and utility of the box when the consumer uses it as a storage receptacle are important. The layout, the art work, the text matter should receive attention. Your product may be new and need introduction. Perhaps no one has time to inform the sales person of its merit. You may accomplish this by using the inside cover of the box. Tell your story there. Again, you may want the big department store to give your product a front window. Make your box a work of art—it will get there. Think of the possibilities with tasteful paper or lithography. Some manufacturers have put over sales campaigns with boxes using a poster top. The set-up box is the cheapest and most effective "dealer help."

Progressive manufacturers maintain departments for studying packaging needs. The manufacturer of a product which must pass through retail channels of distribution will do well to get in touch with a progressive boxcrafter and enlist his services.

Uses of Paraffined Cartons

(*Continued from page 47*) true that the dairy industry represents the principal market for paraffined containers, but it is likewise true that many wax-treated containers are being used every year for various other products.

It was about eighteen years ago that a waxed carton, designed to be used as a butter container, first came to notice. This was made of manila board and plain type adorned its sides and ends, proclaiming a brand name and description of contents. Since this commendable advance, through a comparatively crude method of packaging butter prints, rapid changes and improvements have been made in the process of manufacturing the paraffined carton.

The first and foremost function of a paraffined container is to afford moisture-proof protection. While maintaining and protecting the moist product which it contains, the penetration of moisture through the carton walls from the exterior is also prevented by its use. The packaging of cheese represents an example of the former; the storing of products in a moist atmosphere, such as iced refrigerators, an example of the latter. The paraffined carton performs another function in its ability to protect contents against contamination by foreign odors. Butter, lard, oleomargarine and like products have an affinity for taking up odors from vegetables, fish, and so on, that may be in close proximity. We might say, then, it is one of the virtues of the paraffined container to maintain the original sweetness and purity of a product as when it was first produced.

A few words regarding the gluing of paraffined cartons. The first paraffined containers were waxed "in the flat" and remained so until they were wrapped about the print of butter, brick of ice cream, or whatever product they were intended to protect. Later it became desirable, as well as necessary, to produce a paraffined container that was glued along one side and with flaps that would tuck in at both ends. Several years of patient research and experiments were required before a dependable machine was developed that would perform the operation of folding and gluing a paraffined carton. The problem encountered lies in the fact that glue will not adhere to a paraffined surface, so that it was necessary to remove the paraffine from certain portions of the container preliminary to a gluing operation. A machine was finally perfected whereby paraffine is removed on certain surfaces of the carton, waterproof glue applied and the carton folded into shape so that the glued surfaces might adhere to each other.

With the widespread popularity of containers with a paraffined treatment, together with the many new uses to which they are being applied, it is natural that the past seventeen years have witnessed rapid improvement and refinement. These many changes are apparent in the present use of colorful, attractive designs, improved type composition and the adoption of certain sizes and types of packages best suited to the consumers' requirements. The grade of carton board has also been subjected to improvement. Where cheap manila stock was once used (with doubtful guarantee of sanitation), we find today the greater percentage of paraffined containers made up of pure bleached sulphite lined manila board, ideally adapted, both from the standpoint of strength as well as sanitation, to the packaging of the most delicate and perishable food products.

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Tin Containers

Progress in the science of chemistry and bacteriology, advancement in the methods of manufacturing cans economically, and modern developments in the art of lithographing tin plate have all contributed to bring the tin container into its own in the wide field of packaging.

Gone are the old prejudices against eating food from cans. And what food product is not available in cans? Milk, fruits, vegetables, fish, meat, olive oil and so on, *ad infinitum*. For hundreds of products other than foods, tin containers have been adopted as standard because of the protection afforded to contents, because of their handling, shipping and wearing qualities, and because of their low cost as compared with containers made of many other materials.

It can be truthfully said that anything that needs a container can be put into a tin can, but the difficulty very often found is that the product may not be able to stand the cost of a container. The result is that many producers turn from the use of tin to other material, which is not as expensive, and, in their opinion, serves the purpose. Except in the industries where, through experience, certain standards have been established, the type of containers used depends entirely on what the producer thinks necessary. It may be a can with both ends double-seamed on; it may be a friction or screw top and perhaps with some sort of nozzle or spout, and this can be kept on almost indefinitely if it were intended to enumerate the multitude of cans used in a particular industry. In each industry, because of necessity, where any considerable volume is to be packed, mechanical genius has developed particular equipment that will handle and accommodate the requirements of that particular trade. The coffee roasters, in particular, have at their disposal complete weighing and filling units, which greatly simplify their problem of weighing and filling their cans; likewise the tea packers, spice grinders and other industries. Each industry has its particular requirements, and to fill these requirements suitable can manufacturing equipment has been invented and is available.

Experience has taught the value of the tin can because of its strength and protection. A metal container is able to withstand the usual transportation usage and still not add any appreciable weight that will eat up freight charges. But in addition to strength and protection, the metal container offers two more important advantages—that is, its economy in handling, inasmuch as it eliminates, to a great extent, the spoilage which usually attends other materials, but its greatest value is in its ability to lithograph customer's trade mark or label identification. This is of great assistance because the label can never be destroyed, always presents a bright appearance, and remains an advertisement for the producer so long as the can remains unopened, and even after that.

Few buyers realize the importance of the advertising secured through lithography, but gradually the true value is being realized more and more and can buyers are specifying their requirements for lithographed tin cans. Possibly this one feature alone is more than equal to the slight increase in cost necessary to pay for the tin can over other materials. But buyers should exercise certain care in the matter of buying lithography. Lithography in itself is an art and science, and they should be careful to have their ideas capably interpreted by experienced artists and then have a reproduction to metal made by a company whose experience has proved their ability to properly reproduce label combinations. Like everything else, there is a big difference in production of tin cans, in so far as quality is concerned; and like many other things, some people are inclined to consider it only from a price angle rather than a quality viewpoint. Half of a buyer's can requirements is the company behind the production of his containers, meaning the earnestness and care with which they apply themselves to the execution of all orders and that intangible something, which may be much or little, called service. It is, at times, very satisfying to a buyer to know that even though the containers themselves are satisfactory, there is some one in an organization who can be of some assistance in helping him plan his package.

Fibre Cans and Tubes

By W. E. RITCHIE

W. C. Ritchie and Company

The range of sizes, shapes and styles available in fibre cans and tubes is so broad that it is not a question of finding one that fulfills requirements, but a question of selecting that which will do the utmost to help sell merchandise. Careful attention has been given the various manufacturing processes; improved quality and lowered costs have resulted.

There are types of fibre cans for solids, liquids and powders. To mention but a few examples illustrative of the wide variety of uses: they serve as containers for anti-aircraft ammunition, tooth powder, face powder, birdseed, spices, ice cream, oysters, absorbent

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cotton, pie fillers, belt dressing, and such products.

From a packaging standpoint, tubes, which are usually spirally wound but may be convolutely wound, are of interest, largely for mailing posters, calendars and similar material. For this they are ideal. Kraft paper ends which tuck in and prevent the contents slipping out are put on when required. Two, three and four ply tubes are most commonly used. To fill unusual requirements in the mailing field and in that field where fibre tubes function as component parts of a package, they are made of any number of plies up to fifteen. Diameters range from less than one-half inch to twenty inches. Papers and boards of all kinds, ranging in thickness from 0.003 to 0.040 may be used. Special characteristics are developed by the selection of the adhesive, such as animal glue, vegetable glue, asphaltum, etc., and by dipping or spraying.

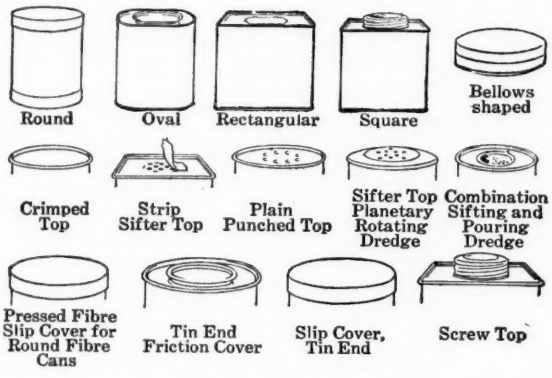
The greater number of fibre cans fall into two broad classifications: those with paper covers and those with tin ends. In rare instances a combination of a paper cover and a tin end is employed. A few shoulder cans are used with paper covers and tin parts for closure. The term "shoulder can" describes one with an inner neck member glued in the base over which the cover fits, making the side walls of base and lid flush with one another. This construction provides substantial protection for merchandise which may be enclosed and has been approved by postal authorities for mailing bottled liquids.

Almost all fibre cans in use today are round, but some manufacturers are equipped to produce oval shapes as well. There are practically no limits on the height of fibre cans that can be produced and the diameter range is from less than one-half inch to seven and one-half inches.

The possibilities for developing sales packages in fibre cans is great, due to the fact that domed covers can be furnished to give a bellows effect when required, and pouring spouts may be attached or semi-perforated covers furnished for use with powdered products that are to be poured or sifted. Fibre covers are available in a complete range of colors, and, in addition, may be printed with appropriate copy. The side walls of fibre cans can be covered with fancy papers or printed labels as desired. If the can is to be labeled after filling and closing, the ends may be necked-in to bring the outside of the cover flush with the side wall of the can.

Fibre cans with tin closures, although somewhat more expensive than the all-fibre can, present a number of advantages that frequently make the extra cost well worth while. The closures commonly employed are: plain tin bottom, slip cover, friction top with plug, filler bottom, semi-perforated top, pouring spout top, combination sifting and pouring dredge, nickeline rotating sifting and pouring dredge and threaded screw covers. Special openings can readily be supplied in semi-perforated, sifting and pouring type closures. All of these closures can be made up from plain tin plate, lacquered tin plate, coated tin plate or lithographed tin plate.

Fibre cans with tin closures, often called composite cans, are made in a number of shapes: round, oval and rectangular with rounded corners. As in the case of all-fibre cans, the range of heights that may be



furnished is almost unlimited, and the diameters of round cans range from three-quarters inch to seven and one-half inches. The size of rectangular cans with round corners is at present limited to a minimum of $1^{11}/_{16}$ in. x $1^{1}/_{4}$ in. and a maximum of 6 in. x 4 in.

With few exceptions all fibre cans are spirally wound, but, in the case of fibre cans with tin ends, many are convolutely wound instead. All shapes other than round must be convolutely wound. A convolutely wound can is somewhat more expensive than the spirally wound can but has the advantage of being more substantial and can be labeled in the process of manufacture at a nominal cost.

The materials commonly used for the side wall of all-fibre cans and fibre cans with tin ends are: chipboard, straw-chipboard, manila, real and imitation Bedford, parchment and glassine lined on chipboard or Bedford, and combination boards made up from paper and board combined with asphaltum. Incorporating asphaltum in the side wall material produces a high degree of resistance to moisture, and utilization of parchment produces a container that will withstand the action of practically all oils and greases. To a lesser degree real Bedford and imitation Bedford are moisture and grease resisting. The best liner for protection against oil and grease penetration is glassine.

A special type of all-fibre can made from manila, paraffined inside and out, is produced by a number of manufacturers and carried in stock by them and other distributors for use in packaging ice cream, oysters, pickles and other liquid, or semi-liquid, products that are sold in bulk. These liquid-tight cans are carried in the following sizes: one-quarter pint, one-half pint, one pint, one quart, one-half gallon and one gallon. The side walls and tops of these stock cans are plain, but special containers may be purchased, the side walls or the top (or both) of which may be printed in accordance with the customers' wishes.

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Special and Fancy Paper Bags

BY H. S. DANIELS

Union Bag & Paper Corporation

Did anyone ever spring one of those "Intelligence Tests" on you—a list of words read aloud with just enough pause after each word for you to write down the first thing it suggests to you? Thus, to the word "rain," you may write "dismal" (if you have just had a week-end spoiled by wet weather) or "expensive" (if your roof needs repairing) or "welcome" (if your farm has been suffering from a drought). The psychoanalyst then tells you what you are by the reactions you have registered.

Such a list, given to a list of business executives recently, contained the words "paper bag." Most of the replies said "grocery store." One said "kitchen," and one, "rubbish." We hope that last was based on the fact that this particular B. E. used garbage bags in his kitchen, rather than on his general opinion of paper bags! The significant thing about these answers is that every one thought of paper bags in terms of the ordinary brown kraft grocery store bag—which is a fair statement of what the term "paper bag" means to nearly every one outside of the industry itself. And that is one of the greatest handicaps a *special* or *fancy bag* salesman has to overcome.

In those same grocery stores, one-pound units of coffee are displayed and sold in paper packages which first surround the coffee with a sheet of glassine, and then use an outer wrap of pure white enamel paper, attractively embossed and brilliantly printed over the complete surface of the package with as many as four colors or gold or silver bronze. Down on the counter, special loaves of bread (such as rye, vienna, etc.) are protected with a sheet of glassine which has a "window" of transparent cellulose, through which the bread may be seen as clearly as though it were packed in glass. On the candy counter, all-transparent and transparent-window packages contain everything from salted nuts to nougatines.

In the back of the store, the old-fashioned flour and sugar barrels have given 'way to pure white paper packages, attractively printed with brand identification, and containing 2, 4, 5, 10, 12 or 24 lbs. units of pancake, pastry or patent flours, sugar, rice and similar food products. Even potatoes are packaged in sturdy kraft sacks, ventilated to preserve the condition of the selected and graded "spuds" they contain. Outside the store, on the front sidewalk, paper packages of coal, coke, charcoal and kindling wood are ready to be carried home. And next door, where they are installing a new driveway, the cement is neatly stacked in multi-wall paper packages.

These are all "paper bags." But they are *special* paper bags. Each has been designed to meet the requirements of a definite use, just as the original, brown grocery bag was designed to give the grocer the most economical and convenient means of assembling and delivering your order.

From the time the first salesman and bag-machine mechanic worked together to produce a bag a little longer and narrower than the standard grocery size, for some customer who wanted to slip an article of that shape into a bag instead of taking time to wrap it, special, made-to-order paper bags have invaded almost every industry where packages of any kind are used. Just recently, paper bags were used to ship orange-juice! It was frozen orange-juice, to be sure, but it was frozen after it was poured into the bag.

Like every other style of container, special bags have practical limits to the fields in which they may be used. But their convenience and economy is steadily extending the boundaries of those fields, and each month sees a special bag being developed for some product that has never before considered a "paper bag" as a possible package. The improvement in range, styles, materials and printing facilities available in special bags has naturally done much to widen these fields.

There are four major services that a special, made-to-order paper bag is well adapted to perform:

1. An attractive, *economical*, retail package.
2. A protective covering—sometimes an insulation.
3. A measure, or convenience unit.
4. A means of identification for products not easily trade-marked or branded upon themselves.

Any manufacturer who has one of these four problems to contend with may well investigate the possibilities of a *tailor-made* bag to give him the most economical answer. It is seldom that the four groups are drawn sharply; usually a special bag combines several of these services at the same time. The package that is needed as a measure, for example, can increase sales by being designed as an attractive retail package, and can protect the contents against deterioration by having a waxed or glassine liner. Nor do these four groups represent the entire range of special bag uses, by any means. But they are the most common requirements that have created made-to-order bags, and as such, a few examples may be of interest.

Retail Packages: The trend toward smaller kitchens and less pantry shelf-room in our homes naturally results in a demand for smaller, prepacked units of many products formerly sold in bulk, or in large packages. Flour, coffee, rice, sugar, etc., are

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all going into smaller and smaller packages. Recently the "10-cent size" has gained much popularity. Attractively printed, *duplex* fancy bags offer the ideal means of adding such smaller units.

In the chemical field, insecticides, fungicides, paints (calsomine and dry colors), cleaning powders, patching plaster, etc., have all adopted a retail household-size unit.

In the confectionery, nut and bakery fields, the recent development of transparent cellulose—either as an all-transparent bag or as a "window" bag—has provided a special bag that combines sanitary and display appeal and has suddenly jumped the sales of many a product formerly packed in an opaque covering, or not wrapped at all. Even piston rings and running pants are now individually packaged in transparent cellulose bags.

Protection: Dry goods and textiles, such as shirts, blankets, gloves, diaper cloths, etc., are protected from soilage until the purchaser himself breaks open the package. The elimination of shopworn "seconds" more than pays for such protection, without considering the added prestige and sales-incentive that individual wrapping always gives to any product. Top-quality fork, hoe and axe handles, canoe paddles and baseball bats also use special bag protection against soilage—and combine this protection with the opportunity for trade mark identification and display. Two outstanding examples of the *insulation* service are (1) the bag used to cover blocks of Dry Ice (which is too cold to touch with the bare hands) and (2) the duplex asphalt paper bag liner for egg cases which, by retaining the CO_2 gas in the case, so helps to preserve the freshness that eggs so packed bring from one to four cents a dozen premium in the markets where official grading is required. Still another form of protection is the wax-lined bag in which your laundry returns the "damp dry" portion of your wash—the bag retaining the moisture until it is convenient for you to iron the pieces.

Measure: In the drug and chemical fields, particularly, paper bags have been designed to serve as exact measures for contents that must be mixed before using. An example of this is the insecticide bag, where the amount of the contents is in exactly the right proportion for a given amount of water, and it is only necessary to break the entire bag into whatever quantity of water the directions (printed on the bag) call for. Another very popular "measure" use is the coffee bag for restaurant trade. The bag is designed in the proper size for a given blend of coffee so that the whole bag may be dumped into the tall nickel urn full of water. Such "measure" bags make the proper proportioning of the product foolproof, even though an illiterate laborer mixes his own insecticide and the janitor prepares the early batch of coffee.

Identification: Maybe you have purchased a wrench lately and wondered where it got any protection from being packed in a special paper bag. But while you were wondering that, you were reading the trade mark of that particular wrench, and possibly some advertising matter that was printed on the bag. Paint brushes and cooking utensils are other examples of products that do not provide surfaces suitable to trade mark or advertising printing, and so are packed in special bags which can be so printed.

More necessary from a practical standpoint is the special bag that has been developed for containing and identifying machine parts. Sturdy kraft bags, equipped with a tin-tie (which permits repeated opening and sealing) and printed with the name or number of the part they contain, are saving time and loss in the assembly plants and service stations of most of the large automobile companies today. Typewriters, vacuum cleaners and electrical equipment are all finding the printed parts-bag equally convenient and economical.

The foregoing is in no sense an attempt to cover the field of special paper bag uses. It touches only a few scattered examples in an attempt to illustrate the very fact that these uses are extremely widespread. Probably your particular product hasn't been mentioned, but it is entirely possible that a special paper bag has been worked out for that product, and is today being used somewhere in the country.

In any event, the rapid development of bag making and printing equipment, and the knowledge that a special bag is generally much less expensive than any other form of container, makes it advisable for any merchant to call in a special bag engineer who knows his business, and let him go over his packing set-up. The bag engineer knows better than to recommend a bag where it won't do the work, and he may know of a type of bag that will do it at considerable saving over present methods.

Textile Bags

The term "textile bags," as the name implies, refers to bags made from textile or woven cloth of one kind or another and is used to distinguish such bags from bags made of paper. Textile bags may be made from any kind of woven material, although practically all are made from cotton or burlap goods.

Textile bags are peculiarly appropriate for packaging certain commodities, just as bottles, collapsible metal tubes, cans and cartons have fields they are particularly fitted by their nature to serve. Textile bags are particularly adapted for use as containers for powder and granular products, such as flour,

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sugar, table salt, ice cream salt, soap chips and powder, and various chemicals. They are also used to advantage in packing vegetables such as beans, rice, potatoes and onions.

The use of cotton and burlap bags for packing potatoes for retail sales has increased tremendously during the past two or three years. Potatoes were formerly received by the grocer in bulk in burlap sacks. He sold them to his customers in paper bags by the peck or pound. The method used today to an increasing extent is the packing of 15 to 25 lbs. of selected potatoes in small cotton or burlap bags. Potatoes so packed not only bring a premium but also enable the groceryman to wait on his trade more quickly.

Advertising value: Brands, trade marks, and other advertising matter may be printed on textile bags in various bright colors in a similar manner as is done on other types of containers. Art departments are maintained by large and more progressive textile bag manufacturers where brands are designed without charge to the customer. Poster effects are most striking on textile bags and with the various contrasting colors available in up-to-date bag designing and printing, attractive effects are obtained.

Textile bags light in weight, yet strong: Textile bags are light in weight compared with most containers, and this means a saving in tare weight on every shipment, thus effecting a permanent saving in freight charges. In spite of the light weight they are amply strong to carry the contents safely to their ultimate destination. They stand the strain under the usual shipping conditions encountered. They do not break or fall to pieces if by chance they fall or are dropped. Research departments are maintained by textile bag manufacturers where tests are constantly being made to determine the suitability of different types of bags for carrying various commodities. Bags are designed for the particular purpose for which they are to be used, and tests are made that simulate actual conditions of use.

Textile bags flexible: Due to the soft cloth from which bags are made they are flexible and adapt their shape to the place in which they are stored. They pack together compactly, saving valuable storage space. The maximum amount of goods may be stored in the minimum amount of space. Empty bags require little storage space as they are bundled in compressed bales. The flexibility of bags makes them easy to handle and they are preferred by shippers and carriers for this reason. Textile bags are flexible in another sense in that they can be made any size desired. Individual shapes and varying sizes, without number, are available.

Textile bags have utility after being emptied: Cotton bags when used as containers for retail packages appeal to housewives, as the sturdy piece of white cotton cloth of which the bags are made may be used as a dish towel, dust cloth, or vegetable bag. Burlap bags always have a good salvage value, as they can be used again for packing commodities of low cost not requiring new containers.

Bag Sealing

Such products as ore, cement, lime, cereals, coffee, drugs and a host of other products are being successfully shipped throughout the country in paper bags.

The paper bags are made in many different ways:

1. The multi-wall bag
2. The lined bag
3. The valve bag
4. The glassine bag

and a number of others.

They are sealed either by sewing with special stitching machines or by tying with heavy cord or by folding and tapeing, and also by lapping and gluing. They can also be stapled. At present the lapping and gluing method seems to make a perfectly airtight package.

Machines are made that will automatically fill the bag and then close it under some one of the above-mentioned methods.

It is advisable, when using bags, to be careful to see that the product packed in them is not affected by any chemical ingredient of the paper.

If an airtight package is desired, the tapeing or gluing method should be used and the bag closed immediately after being filled.

Collapsible Metal Tubes

By FREDERICK REMINGTON

Peerless Tube Company

A classification of collapsible metal tubes may be summarized as follows:

1. Pure tin tubes, made of new virgin tin, alloyed with a small amount of copper or other suitable stiffener, in minute quantities. No adulterant such as lead or other soft metals is used in these tubes and they are essentially for use for any product going on or in the human body. Under normal economic levels tin tubes are the most expensive, but at the time of publishing this book the metal markets are at the lowest ebb since 1900 or before. Tin tubes are as cheap as other competitive metals.

2. Aluminum tubes, admirably adapted for uses similar to tin, with the additional advantage of extreme light weight. A slightly stiffer tube than tin and normally competitive or a trifle cheaper than

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tin except under existing low tin markets. Aluminum tubes require some research in the adaption to certain products, particularly those containing alkalies, but in general they cover the same field as tin tubes.

3. Lead tubes, known as lead alloy tubes, made of pure lead with antimony or tin and antimony, and chiefly used for adhesives, shoe creams, rubber cements and articles where the contents will not be used on the human body.

4. Tin-coated tubes, having a lead alloy base with an even distribution of a thin coating of tin on the inside and the outside, made in such a manner that the two metals cannot be separated. These are the heaviest weight tubes and seem to be declining in volume steadily in the collapsible tube field to the substitution of the other three types, as their scrap value is exceptionally low to the tube manufacturer and the final appearance is not as good as the pure tin or aluminum.

Standards of manufacture and tolerances are being held to closer limits than ever before by the manufacturers, and quality is the outstanding watchword in the entire industry today. With increasing facilities for prompt delivery, the purchasers of collapsible tubes are more than ever assured of prompt service of a high quality package.

Almost any type of decoration can be placed on a collapsible tube and the reproduction of accurate color effects can be held in large quantity runs, and basically this work can be done up to four colors and with ten or eleven shades resultant from screen work if desired. Great strides have been made in the development of resistance for protection against alkalies and other materials which might attack the enamel on the tube and more striking colors are being used in the modernization of tube designs by most of the larger accounts.

Developments of the past year indicate increasing favor of the so-called clipless closures and many replacement filling machines have been sold. These devices are eliminating the use of metal clips and frequently a colored band is lithographed on the bottom of the tube by the tube manufacturer, which results in a colored clip effect.

Modernizing of the tube business has been going on during the past year at a decidedly increasing rate with new equipment cutting down the time of production for collapsible tubes and correspondingly smaller inventories on the part of the purchaser. In addition to this many packages have been redesigned and old, familiar tube designs have been dropped, with complete modernization and new types of lithography taking their place. In addition to this, new shapes of necks and caps have appeared and a further growth of molded caps in colors is indicated.

Tube finishes are more durable than ever with an increasing use of synthetic resinous gums in the preparation of the original enamel which coats the tube, and stronger lithographing inks have been developed and whenever the protection of a coating is needed the increasing trend is noted of pyroxalin lacquers, the gloss of which has been greatly improved in the past year and the resistance to alkalies increased.

It is particularly interesting to note the simplicity of the newer tube designs and the elimination of endless amounts of reading matter which formerly appeared in the directions panel of collapsible tubes. This is proof that the manufacturers of tubed products are convinced that the public seldom takes the pains to analyze the directions matter printed on tubes or cartons, but the shorter and more pertinent directions and reading matter are more easily and quickly read and are far more effective than the complicated instructions which are seldom followed. In fact, many of the new tubes which have been designed in 1930 and 1931 are without any directions, matter being incorporated in the design and the entire effectiveness being brought to the fore of the design itself.

New food products show increased sales in collapsible tubes and are slowly but surely making a sound contention for the use of collapsible metal tubes in this field; and if sales statistics could only be published of such products in tubes, unquestionably the American trend would be as great as the European, where today over 125 food products are packed in collapsible tubes.

Particularly to new users, the previously published summaries should be added, that the average public is familiar with collapsible tubes and knows how to handle them; that they can be packed for traveling without danger of breakage or spilling the contents; that they are sanitary as not to permit fingers into the material itself—more than one person can use the tube and still retain the sanitary feature; that the unit cost should be less for filling and packaging as compared with other containers; that their steadily increasing production indicates growing favor.

Seamless Cellulose Containers

Seamless cellulose containers have been developed to meet a demand for a light weight container to supplement glass in certain fields, as well as metal containers and collapsible tubes. These cellulose (Hycoloid) containers are manufactured from either cellulose nitrate or cellulose acetate as a base, the use of one or the other depending entirely on the field to be served. They can be made transparent or opaque, are odorless and tasteless and may be colored any shade or tint. Vials, bottles, jars, collapsible tubes and non-soluble capsules are some of the standard forms in which these containers are made.

The containers are decorated by a special process. Color effects can be obtained to carry out color schemes involving four colors. The decoration is permanent and will not (*Continued on page 67*)

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Molded Synthetic Plastics in Packaging

Spectacular among the materials which have been enlisted in the cause of packaging are those compounds generically known as molded synthetic plastics. Although the acceptance of these materials by packaging interests has been rapid, it is not to be assumed that they will replace or even curtail the utilization of older and more familiar materials such as glass, metal, paper and so on. As evident in some of the newer packages in which molded plastics are used, it must be apparent that these materials complement the more established substances. Without entering into a discussion of the various classifications technically accorded such compounds, we may, for the sake of simplification and ordinary nomenclature, consider these in three groups; namely, phenol-formaldehyde resinoids, urea-formaldehyde resinoids and colloided cellulose acetate materials. Examples of these, in the order named, are as follows: Bakelite and Durez, Beetle and Aldur, and Lumarith.

Phenolic Resinoids

By H. S. SPENCER

General Plastics, Inc.

Phenolic resinoid compounds or phenolic condensation products, as they are more technically known, are of chemical foundation and remolded or formed under heat and pressure, the manufacturers supplying material in a powdered form to those equipped to make it into the finished closure, jar or box by what is known as the hot press molding system. This work is done by organizations specializing in molding and known to the trade as custom molders. Up to the present time, no manufacturer using phenolic materials in packaging has attempted to do his own molding, which is a specialized undertaking requiring rather expensive and special equipment and experience.

The trend to phenolic compounds or phenolic resinoids, as they are sometimes referred to, for all phases of packaging, has been very pronounced. The public has always liked bottle top and collapsible tube closures made of these materials and manufacturers have found them advantageous not only in the point of sale, but because of their many physical points of practicability. Boxes, display stands, trays for manicure assemblies, etc. A wide adoption is also due to the beauty of the material itself and that because of all the advantages, the fact that the public has liked them and that real design has been put into the development of most of the packages where they have been involved. Real artistry, together with the permanency of the material itself. The material is offered in a wide range of colors, twenty-four solid colors and several mottled effects.

Molded closures of Durez, Bakelite and the like have been developed to exclude cork inserts for use in connection with collapsible containers, although the majority of manufacturers have continued the use of the cork insert, together with the phenolic molded part which makes an especially tight closure.

One of the outstanding advantages in connection with collapsible tubes and molded closures is that the closure does not leak nor do the contents cake or discolor in the mouth of the tube, thus throwing the often fatal strain on the tube's weak spot, the wall at the shoulder.

While manufacturers are alive to the appeal of color and the vogue of colors now reaching into every phase of merchandising, it is not color alone that prompts the use of the phenol resinoid cap.

While this plays its part as does the modernistic trend, these caps have many other advantages in their favor. They are not affected by acids, alkalies and similar reactives; they do not rust or corrode in contact with certain pharmaceutical products and they do not discolor the contents of the container; they are easily gripped and on bottles and jars screw down unusually tight and yet are always readily released. Their threading is stronger than the alloy metals and does not strip. They are light in weight, and have an advantage in carriage convenience and cost over metal.

In group packaging they are particularly fitted for the permanent tray or box for refill purposes.

Phenolic materials lend themselves to display cases, cold cream jars, vanity cases, powder boxes and in fact practically all types of set-up boxes. Their acceptance of the material, because of its fine lustrous appearance, color and design possibilities, resistance to atmospheric conditions and in securing a tight closure, has made it acceptable for the highest grade cosmetics. Manufacturers of foods, candy, shoe dressing, have also found these materials valuable in the packaging of their products.

In design the material is unlimited and will form boxes of any design or shape, no matter how intricate, and often at no additional expense.

Phenolic compounds permit manufacturers to have their own individual closure, bottle cap or container made, for the material lends itself to all types of design, imprinting and similar treatments, as any design engraved in hardened steel molds from which the finished piece is to be made, will carry an exact reproduction of what is desired.

The adaptability of the material permits it to be used for shaker top talc boxes, sprinkler top bottles, inside thread bottles for applicators, etc.

XUM

Cellulose Acetate Molding Materials

By CHARLES F. REEVES

Celluloid Corporation

Cellulose acetate colloided with suitable plasticizers, pigments and solvents to insure a homogeneous, tough, plastic mass forms a molding material of great adaptability for colorful packages or containers.

This unique molding material requires no special treatments such as a hardening bath, curing or subjection to high temperatures to complete condensation or polymerization reactions. Heat and pressure are required merely to mold the material into the desired shape. Waste is eliminated because scrap or flash is reworkable.

Cellulose acetate molding material offers an unlimited color range to the designer of containers. These can be molded of transparent, translucent or opaque materials. Beautiful mottle effects are also available. The imitation of marble, onyx, jade and other valuable materials is so close that only an expert can detect the difference.

Containers or packages molded of cellulose acetate molding compounds are practically non-inflammable, are tough, resilient and resist breakage, are light in weight, uniform, tasteless, odorless, sanitary, noncorrosive, non-injurious and do not deteriorate or fade with age. DeLuxe containers for watches, jewelry, gift items, razors, fountain pen and pencil sets are a few practical applications. Jar tops for cosmetic creams are being molded of cellulose acetate and add greatly to the appearance of the product.

Beetle in Packaging

Beetle is non-inflammable, odorless and tasteless and is not affected by water, alcohol, organic solvents or dilute concentrations of acids and alkalies.

It is unnecessary to use glass liners with Beetle jars, as there is absolutely no reaction between jar and contents. Beetle jar and bottle caps offer a satisfactory threaded seal, but most manufacturers continue to use cork or waxed paper inserts to insure air tightness.

This product is produced in all colors from white to black including ivory and light pastel colors not previously available in other plastic materials. Articles molded from Beetle are extremely durable, which quality has been exploited in the production of Beetle-ware—a non-shatterable line of tableware in colors.

Beetle is being used to advantage in dressing up old items to increase their salability as well as permitting the packaging of new lines in striking solid color effects and color contrasts. It is now being molded in this country by a representative list of custom molders with previous experience in the field of packaging. The facilities of such molders are entirely adequate for the production of containers, closures and the like on a quantity basis.

Cellulose Caps

Cellulose caps are hoods of pure cellulose applied moist over the neck and stopper of a bottle. They shrink rapidly and, as they dry, seal the bottle securely against evaporation, leakage and tampering. These caps are manufactured in a wide range of colors, both transparent and opaque, so that pleasing, colorful finishes can be given the product, that will properly blend with the labels.

While the cellulose cap can be easily removed it cannot be replaced. With the seal intact the purchaser is assured the bottle has not been tampered with—an unbroken cap is a guarantee that the product is exactly as it left the manufacturer's plant. Such caps are applied by hand. An experienced operator can easily apply 800 or more per hour.

Stapling of Packages and Displays

The use of the wire staple as applied to packages and package work today is unlimited. Staples are furnished in various sizes as to crown and leg length and they are used on all types of products.

One of the biggest things today is modern merchandising. No longer need an article be hidden from view, and wise merchants have found out that selling their product on display cards with the product firmly stapled to the display is the modern way. Small articles can now be fastened to cards and handled in the chain stores. Any manufacturers desirous of increasing their sales should investigate the possibilities for popularizing their products in these small-unit, large-sale markets by way of display cards. This is also the most effective way of helping dealers.

Specially constructed stapling machines make it easy for one to staple any type of product, due to the manufacture of many hundreds of different sizes of staples, and the cost of these stapling machines and staples is small. Staples are also being used by many manufacturers in the daily operations in their plants to eliminate expensive methods in vogue. Staples replace tacks, glue, sewing, etc.

Today there is a decided trend toward lighter materials in the fabrication of packages and cartons. Inexpensive hand and foot power machines, both for the assembling of telescope cartons, as well as the bottoms of cartons, are now available; so that manufacturers and shippers of all types can now buy their cartons in knocked-down form and assemble them as they desire, thus eliminating considerable expense and also minimizing the floor space required.

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Glass Containers

By E. G. ACKERMAN
Glass Container Association

The glass container has for many years been recognized as the ideal container for drugs, pharmaceuticals, beverages, milks and certain foods such as catsups, vinegars and table sauces. More recently it has come into general use for the packing of all types of food products. This is no doubt at least partially due to the housewife's acceptance of glass for the home pack. With the entrance of automatic machinery into the glass industry it has also been possible to reduce the cost of glass containers so that they are now comparable with other types of packages.

The style and design feature of a glass container has also made it a desirable package in that it is possible to give the packer a distinctive package, and one which he can advertise and merchandise by its distinctiveness and eye appeal. In addition to the variety of shapes and designs, glass containers are also commonly made in different colors. These include flint (clear white), amber, blue, light green, emerald green, black and opalescent.

There are some disadvantages to use of automatic machinery. First, new molds for constantly changing designs add materially to the cost, and second, it becomes increasingly necessary to have long runs on any one type of bottle. Where the production of a hand shop used to run from 2000 to 3000 bottles per day, the present automatic production runs from 15,000 bottles per day on the large sizes, to 215,000 on the small and medium sizes.

Special types of bottles have been developed for each division of the packing industry. These are known by the manufacturers and the trade under four broad divisions, and then further classified into many smaller divisions. These classifications are given below:

Types and Purposes

1. Food.
   (*a*) Milk bottles: For milk and cream.
   (*b*) Narrow neck blown bottles: For catsups, chili sauces, table sauces, vinegars, salad dressings, syrups, condiments, spices, salad oils, oyster cocktails, etc.
   (*c*) Wide mouth blown bottles: For jams, preserves, mustards, candy jars, cherry bottles, olive bottles, pickle bottles, crushed fruit jars, horseradish bottles, mayonnaise jars, vegetable jars, meat jars, salt and pepper shakers (when sold to packers), etc.
   (*d*) Pressed ware, tumblers: Used largely for jelly, peanut butter, marmalade and some meat products.
2. Beverage Containers.
   (*a*) For carbonated beverages, such as sodas, ginger ales, malt extracts, cereal and malt beverages.
   (*b*) For non-carbonated beverages such as fruit juices and still water.
3. Medicinal and Toilet Preparation Containers. (Both pressed and blown.)

For all medicine bottles, druggists' prescription ware, bottles for pharmaceutical preparations and manufacturing chemists, toilet preparations, cosmetics, nursing bottles, sterilizers, peroxides, citrates, hair tonics, pomades, atomizers, liniments, cold creams, vaselines, face creams, lotions, talcum powders, castor oils, flavoring extracts, liquor ware, perfume and toilet-water bottles and tooth-brush containers.

4. General Purpose Containers.

For acids, cleaning fluids, polishes, paints, shellacs, varnishes and stains, ammonias, inks, mucilages, battery jars, soap globes, oil dispensing bottles, reservoirs for oil stoves, floats, fire extinguishers and other special items.

Advantages of Glass

The glass container possesses many marketing advantages from the standpoint of the packer and bottler. A few of these advantages are listed below. Their sequence of importance depends upon the product.

1. The glass container is the most sanitary container. Dirt or any foreign substance in the product can be readily detected through such container.

2. The glass container places delicate foods and drinks in the consumer's hands free from all foreign tastes and flavors.

3. The development of automatic machinery makes it easy to pack a product in glass.

4. Transparent containers guarantee 100 percent inspection, thus establishing market and public confidence.

5. In revealing everything as it is, the glass container gives the packer full credit for his use of high-class raw materials and superior packing methods.

6. The glass container helps sell its contents; it is the "silent salesman."

7. The packer is protected in that if there are any imperfections in the product or mistakes in labeling, they can be detected while in his hands.

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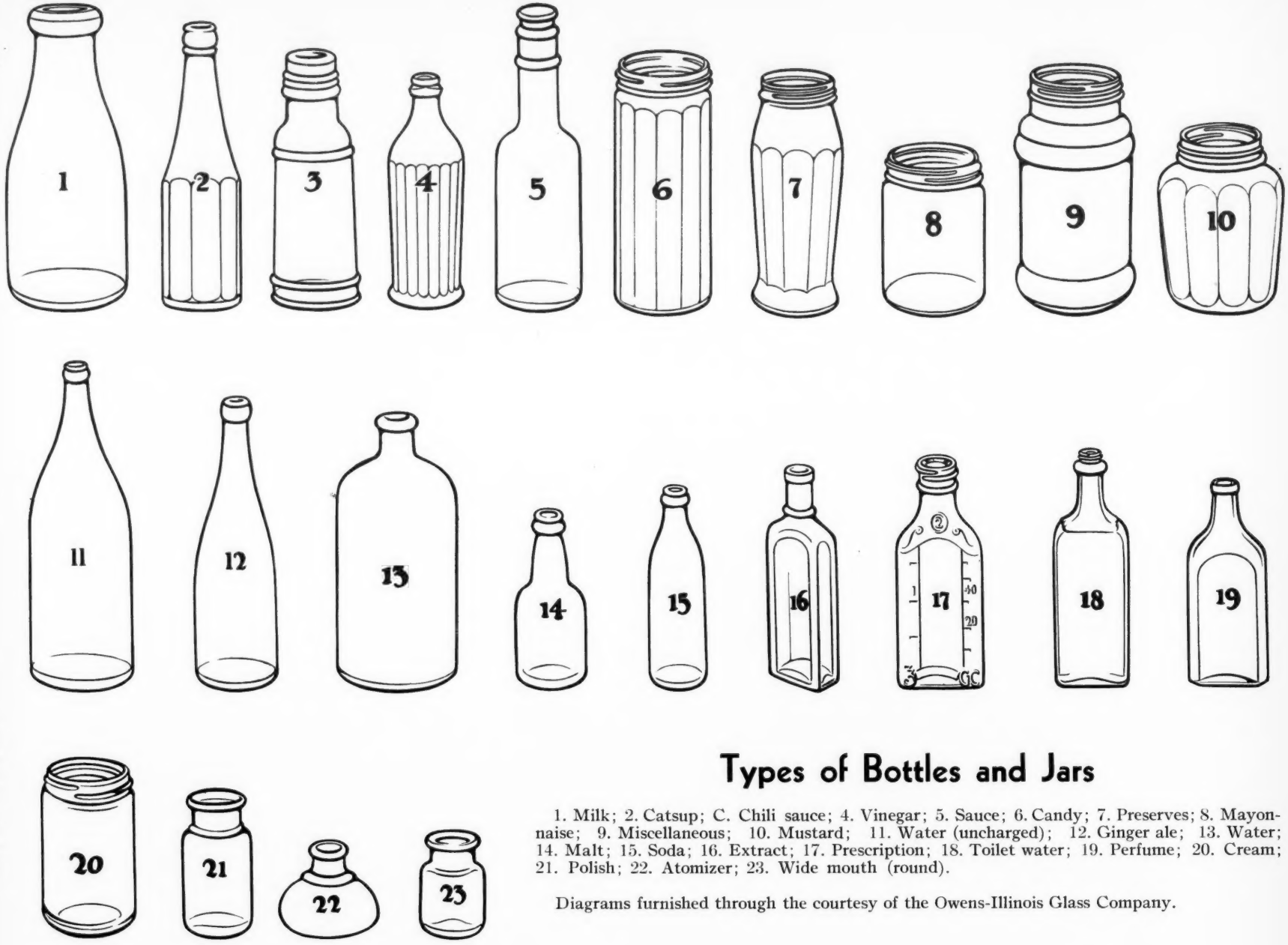

Types of Bottles and Jars

1. Milk; 2. Catsup; C. Chili sauce; 4. Vinegar; 5. Sauce; 6. Candy; 7. Preserves; 8. Mayonnaise; 9. Miscellaneous; 10. Mustard; 11. Water (uncharged); 12. Ginger ale; 13. Water; 14. Malt; 15. Soda; 16. Extract; 17. Prescription; 18. Toilet water; 19. Perfume; 20. Cream; 21. Polish; 22. Atomizer; 23. Wide mouth (round).

Diagrams furnished through the courtesy of the Owens-Illinois Glass Company.

8. Since color is a potent selling factor, the transparent glass container packed with a colorful product offers unusual opportunities for the use of attractive, harmonious and sales-pulling labels.

9. The glass container has the best psychological background. From the nursing bottle through childhood to old age, glass stands for purity and sanitation in everybody's mind.

10. The housewife is already sold to the idea of glass for home preserving. Thus, she is a ready prospect for goods marketed in glass.

11. The demand for greater variety of products in glass is rapidly increasing.

12. The glass container lends itself to individuality in size and shape; hence, it is adaptable to many products.

13. Modern glass containers possess great tensile strength, withstand the heavy shocks incident to shipping and handling, and can be subjected to very high temperatures in processing (cooking).

14. The manufacturers of glass containers and closures are glad to cooperate with the packer. They are squarely behind their product and their customers.

The Glass Container Association of America, 19 West Forty-fourth St., New York City, is at the service of packers and bottlers requesting information upon glass containers, closures, machinery and equipment and specific packing and bottling problems.

Liners for Caps

By E. C. EMANUEL

Armstrong Cork Company

Packaging involves few, if any, problems more complex than that of properly lining caps for bottles, jars and tubes. Highly involved physical and chemical characteristics must be carefully considered in the case of each individual product, or failure of the liner is apt to result. Acting as a more or less resilient gasket which the cap compresses and holds against the bottle, the liner must make an efficient mechanical seal and reseal. Moreover, it must be of such physical and chemical nature that it will not disintegrate or lose its efficiency.

When the use of liners was confined to crown caps, for which they were originally devised, the problem was not a trying one. It was answered satisfactorily by disks of natural cork or of cork compositions that would hold the comparatively simple and chemically inert carbonated or low alcoholic beverages which were sealed with crowns. However, with the development of screw caps and other types of mechanical closures, the liner problem became more complex. Manufacturers were confronted with the necessity of finding lining materials that would seal hundreds of oils, solvents, gums, extracts, astringents, essential oils, salt solutions, acids and alkalies combined in an infinite number of formulas which differed in their chemical reactions.

Many materials have been developed for the purpose, but still there remains the question of determining which particular one to use for a specific product. Logically enough, the cap manufacturer has shouldered the job of answering this question for those who contemplate using his caps. The packer can and should by all means submit sample packages of his product and a chemical analysis of it to the cap manufacturer for laboratory tests to find out the kind of liner it requires. This is all-important, for a liner chosen by chance, even when there is good reason to believe it will be satisfactory, is apt to fail, with resultant losses in sales, returned merchandise and good-will.

Cork compositions produced by granulating high-quality corkwood, introducing a binder, and compressing into blocks from which sheets or ribbons are cut, are the most widely used lining materials. Disks of natural cork are also used to some extent but due to the limited supply of corkwood that is largely free from pores and other defects, its use is restricted. Compositions serve equally well except in that the introduction of a binder and the presence of interstices in the surface make them susceptible to chemical reaction in some cases. Various binders that are inert to certain chemicals are used to overcome this, and this factor marks the first differentiation between cork composition liners.

In addition, it has been found advantageous in some cases to treat the cork composition with paraffine or other waxy materials. Such treatment often makes a plain cork liner satisfactory. However, these treatments should be used with caution as there are many liquids with which they should not be used.

A great variety of liners is produced by applying a facing material over the cork composition. This operation is ordinarily referred to as "duplexing." The cork gives the liners the necessary thickness, strength and resilient compressibility, while the facing, which is presented to the contents of the package, resists chemical action. The facing materials used are varnished papers, paraffined papers, tin foil, aluminum foil, lead foil and foil backed with paper.

Varnished papers, which are probably the most widely used of all liner facing materials, have been

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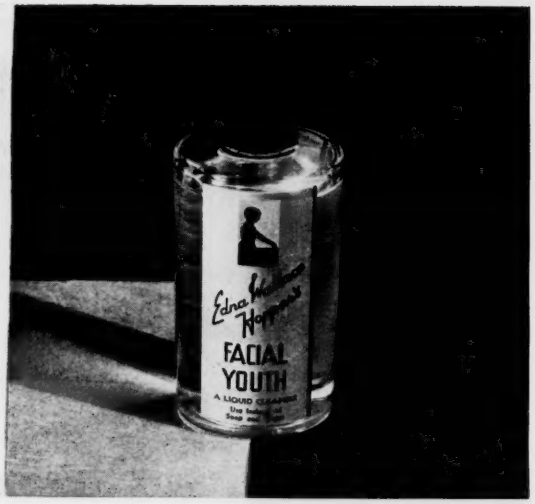
COMPARATIVE CHANGES IN CONTAINER, LABEL AND CLOSURE DESIGNS. FOOD PRODUCTS. OLD PACKAGES ABOVE; NEW, BELOW.
PHOTOS COURTESY OF OWENS-ILLINOIS GLASS COMPANY



COMPARATIVE CHANGES IN CONTAINER, LABEL AND CLOSURE DESIGNS. PROPRIETARY PRODUCTS. OLD PACKAGES ABOVE; NEW, BELOW.
PHOTOS COURTESY OF OWENS-ILLINOIS GLASS COMPANY

appropriated and developed from the electrical insulation business. They have different chemical characteristics depending on the formula used in making the varnish. Two pieces may be identical in appearance and yet vary greatly in performance. Careful tests of varnished papers must be conducted before selecting a specific kind or quality for a product. Sometimes varnished papers are coated with paraffine in order to lubricate the surface and prevent tearing, due to roughness of the bottle, when the cap is screwed on. This safeguard cannot be used if the liners are to seal products which dissolve the paraffine. Paraffined plain white paper as a duplexing material sometimes proves satsfactory with creams and pastes. Ordinarily it cannot be used with liquids.

Tin foil-faced cork composition has a large field of usefulness as a lining material due to the fact that it withstands contact with a wide range of chemicals. However, it also has definite limitations and is more expensive than varnished paper. To give tin foil added strength and a better appearance, a lining material has been developed in which very thin foil is backed with a reinforcement of paper. In some instances aluminum foil and lead foil are also used.

In addition to cork, as a liner backing, some other materials are used. Felt can be used as a backing for paraffined or varnished papers, or the metallic foils. It gives an inexpensive liner which serves some purposes. Felt, however, does not have the resilience and compressibility of cork.

Pulpboard is still another such material which may be had in the various facing combinations mentioned. It is still less resilient than felt. Rubber is also used for liners. Its principal use is in sealing strong alkaline solutions which attack the more common lining materials. Special rubber liners for hypochlorite and other preparations have been developed and there are special compositions for organic solvents.

Reiterating a point which is worthy of emphasis, it is advisable always to consult the cap manufacturer on the matter of liners. It is dangerous to take chances on adopting even the same material used on a competitive product of closely similar formula. To illustrate, practically all shampoos use one of the common varnished paper liners. Yet a certain shampoo which was submitted for tests softened the film on the customary varnished paper. Another paper was attacked by the liquid. Heavily paraffined cork composition was penetrated by one of the solvents. It developed that what had appeared to be an inconsequential change in the shampoo formula had entirely changed the liner problem. Eventually a varnished paper was found which resisted all the component parts of the shampoo. Its use was recommended to the packer and has proved entirely satisfactory.

Slight changes in the formula often necessitate a different liner. For example, a certain varnished paper may meet the requirements of a particular preparation but the addition of an essential oil for flavoring or perfuming would make varnished paper inadequate. Instead, a tinfoil-faced cork composition liner might be required.

Closures

By A. J. STERLING

From the earliest days of mankind the problem of sealing all classes of containers has been a vexatious question. The primitive urns, crocks and other vessels were sealed with covers of pottery, wood, skin and other crude methods, often topped with waxes of various kinds.

The first great advancement came with the discovery of cork, and this rapidly became universal in use. It served its prime purpose well and kept the contents of the container from leaking. Of course, glass became the first container with which the manufacturer had to contend and later on tin cans brought him further problems.

Glass, with its sanitary qualities, transparency and pleasing effects, took its natural leadership in a great many lines, but probably even today only about 30 percent of those products which could be glass-packed are shipped in glass. This is due to the fact that up to the present time the glass container, plus the seal, plus the label, has not been considered as integral a whole as the tin can.

An ordinary cork, when pushed all the way into the neck of a glass container, needs a corkscrew to get it out, and this often destroys its effectiveness as a re-seal. Although corks form a very tight seal, they are hardly ever absolutely airtight. Space forbids going into details about corks or all the other seals that have since been discovered, most of which are now in use. Suffice it to say that it behooves us all to carefully study, test and compare the seals and methods before adopting any, remembering that cork, metal, lacquer, liners, glassware and material to be sealed must all be taken into consideration.

How few users know that a screw cap may be applied with a downward pressure like a crown cap? How many manufacturers know that even screw caps vary as to pitch and application? The following list of closures probably are the most prominent:

XUM

Glass Finishes for Closures

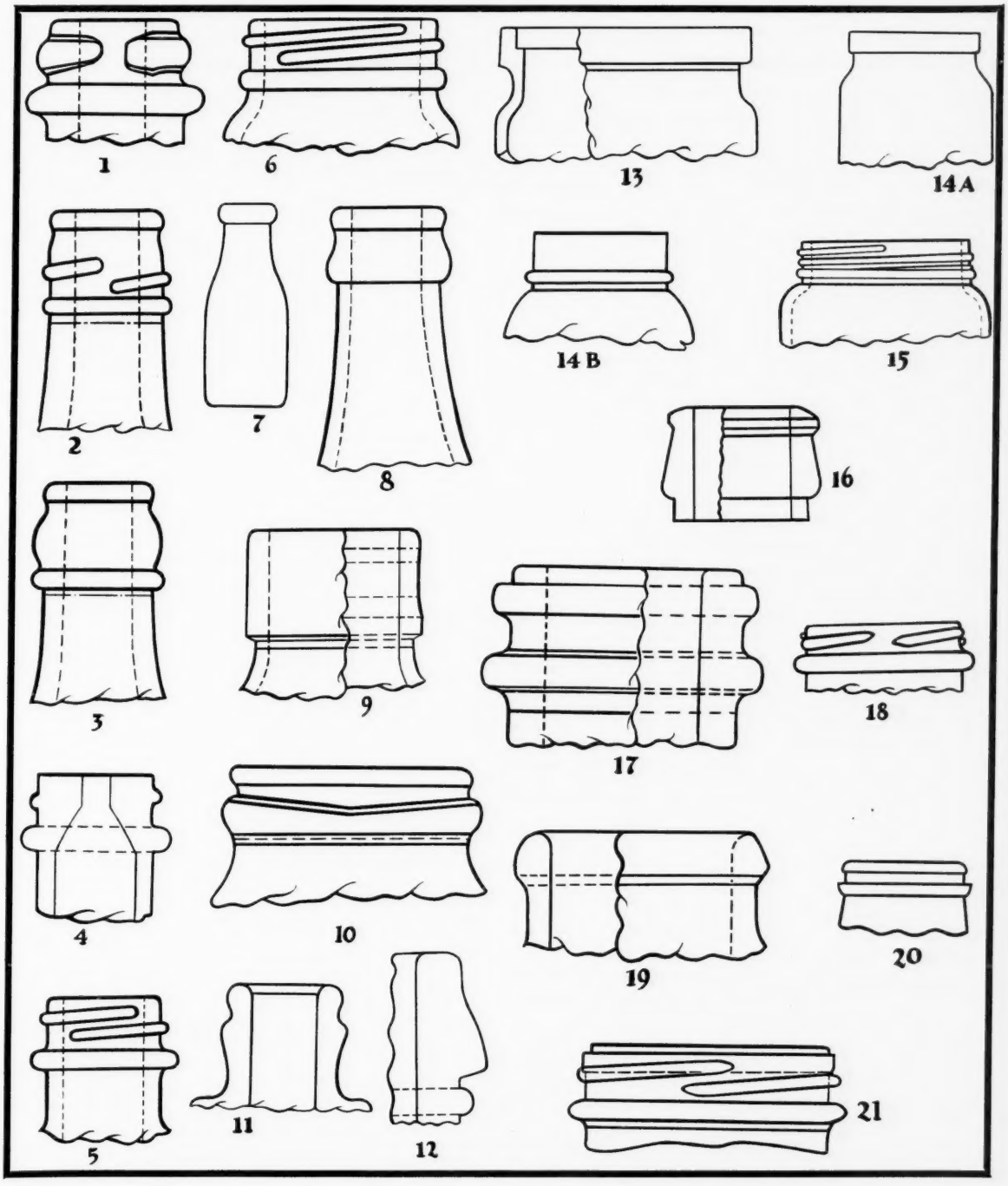


Fig. 1. Two lug Amerseal; Fig. 2. Combination Goldy, Crown, Handicap and screw cap; Fig. 3. Combination Goldy, Crown, Handicap and friction cap; Fig. 4. All glass sprinkler top; Fig. 5. Shallow continuous thread; Fig. 6. Deep continuous screw thread; Fig. 7. Milk bottle; Fig. 8. Crown beverage; Fig. 9. Save-a-seal (Patented); Fig. 10. Variable ledge "Priof"; Fig. 11. Kork-N-Seal; Fig. 12. Four lobe duplex seal; Fig. 13. Band cap; Figs. 14-A and 14-B. Anchor or friction; Fig. 15. "R. O."; Fig. 16. Goldy; Fig. 17. Super-crown; Fig. 18. Four lug reseal; Fig. 19. Upress-it; Fig. 20. Straight ledge pry-off; Fig. 21. Everseal.

Diagrams furnished through the courtesy of the Glass Container Association of America.

XUM

SINGLE SEAL CLOSURES

Crown.....Various types. Used in the soda water, food products and brewing industries.

American Can and Hazel-Atlas....An aluminum cap with two ears for tear-off purposes.

Hazel-Atlas.....Aluminum and tin. A vacuum cap.

Goldy.....Generally used in the catsup industry and has tear-off feature. Aluminum.

Anchor.....A vacuum cap used in food industry for wide-mouth ware.

Band cap.....A cap used in the food industry and applied by crimping.

White.....A vacuum cap.

RE-SEAL CLOSURES

(Closures that can prevent contents from spilling when held in any position)

Roll On.....An aluminum screw cap, whose threads are formed on the container.

Kork-N-Seal.....

Williams.....A cap sealed under downward pressure.

C. T.....Aluminum, phenol resinoid, tin, glass, brass or zinc. This is the regular screw cap.

Darling.....Adaptation of crown with re-seal feature by means of wire lever.

Duplex.....A quarter-turn cap, sealed under downward pressure.

Amerseal.....One- and two-piece. A quarter-turn cap sealed by means of interrupted thread.

Upress-it.....Sealed by means of side pressure and opened by means of downward pressure.

Sterling.....A cap for narrow- or wide-mouth ware, sealed under pressure or vacuum.

Owens.....Snap on. A friction cap.

Closure service...A band cap.

Corks.....Rubber, natural, glass and cork, round glass stopper, paper discs.

Brass cap with lugs.....These are either friction or quarter-turned caps.

American Can and similar types using interrupted threads.

Spring stopper...Made of glass, phenol resinoid, etc., with internal C. T. features.

Friction caps.....Especially designed for use on catsup and chili sauce bottles.

MISCELLANEOUS

Viscose.....These are cellulose or gelatine caps, usually put over another closure to insure no tampering and give extra airtight property.

Gel cap..... ..Same idea as viscose.

Tin foil hoods....These are commonly used on alcoholic products and put over corks.

Sprinkler tops....With or without spun-on features and allowing use by means of shaking.

SINGLE AND RESEAL CLOSURES

(Used on tin containers only)

One-draw slip cover.....Various types such as coffee cans, etc.

Barrel spout and cap.....These are screw closures with non-drip spout effect.

Lock-Tite slip cover.....These are a particular type, insuring absolutely tight seal.

Friction top.....With or without inner seal. These are the ordinary pushed-in friction cover.

Newman.....With or without inner seal. These are generally used on varnishes, olive oil, etc., and are spun on.

Tite-N-Rite.....With or without inner seal. These have a hinged cover which can be used after opening as a re-seal.

One-piece single seal.....Reamed-on or clamped-on seal.

Various adaptations of the C. T. cap with anti-refill or theft features.

These classifications are of necessity brief—nor do we wish to do more than to impart the information that manufacturers of products are more and more becoming convinced that a container is not merely the glass bottle or the tin can or the shape or design of either. It is now generally understood that a container means the vessel, plus the closure, and the closure consists of the metal, its formation and the liner—for without liner there can be no closure.

These liners are composed of a variety of substances, as, for instance: Plain cork, composition cork treated in various ways, paper impregnated with different products, rubber, cork with paper, tinfoil, lead, zinc, aluminum, etc., facings, felt and a host of other products which are decided upon by chemists for the particular product to be sealed.

These elements, properly selected, form the container, and together they enter into the successful sale and marketing of the product.

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Glass Package Labels

The use of glass containers in the packaging of food products in many ways simplifies the problem of label design. At the same time, if glass package labels are to be most effective, it is necessary that a consideration be given to a number of factors which are encountered with glass but not with other types of containers.

Usually one of the functions of the label is to make the container seem well suited to the product, though in fact the container itself may be one which is used for products of widely varied natures. Since glass can be moulded or blown into many shapes and sizes, it is possible to design and produce a container especially suited to a product that will in time identify the contents. Some of the containers which are firmly established in the public mind as suitable and convenient for the products with which they are used are catsup and chili sauce bottles, preserve, pickle and mayonnaise jars and jelly and peanut butter tumblers.

In the design of labels used for glass food containers, the first questions to be considered is that of size. With most opaque containers a label as large as the package itself must be used. Obviously so large a label would not be required with a glass container nor would it be desirable, since in choosing glass as a container for food products one of the main objectives is to make it possible for the consumer to see what she is buying. Relatively speaking, therefore, the glass food container label should be of a small size and it should be so designed that the consumer can see the product when looking directly at the front of the package with the label in place.

Thus the question arises as to how a small label can be used to best advantage. There are a number of possibilities along this line which as yet have only been partly realized by packers in glass and which for emphasis can be listed and discussed. They are:

1. Legibility
2. Shape
3. Background
4. Color Combinations
5. Packer's or Brand Name
6. Name of Product
7. Trade Mark
8. Poster Treatment
9. Artistic Design
10. Standardization

The second problem presented by glass package labels is that covering instructions as to how the product should be used or suggestions as to the variety of ways in which the product may be used. Obviously, instructions or suggestions of this nature cannot be carried by the package label itself, for that must be kept simple in every respect and used almost exclusively as a mark of identification to aid the consumer in selecting the packer's product. There are two methods, however, which may be used to overcome the limitation of the package label proper in this respect. The first is the use of a second label and the second that of lithographed caps or closures.

If the second label is used it should conform to the package label insofar as the color combination used is concerned. Otherwise it should be as plain and practical as possible. In most cases an upright oblong label placed on the back of the container will best serve the purpose. The instructions for use should be made as simple and clear as possible, for it must be remembered that the consumer in buying package merchandise is buying for immediate use and trying to avoid as much as she can the work involved in the home preparation of food.

Likewise, if the second label is used to suggest new ways in which the product may be used, it is desirable to hold to those uses which are quick and convenient rather than to list others which are complicated.

Lithographed caps or closures can be used for the same purposes as the second label and packers are beginning to see the desirability of this practice. In the first place, the lithographed cap lends distinction to his package and at the same time eliminates the cost of extra labels and likewise the cost of applying them. However, regardless of whether use instructions or suggestions are considered necessary and desirable, the lithographed cap or closure is coming more and more into favor.

In the case of lithographed caps, it is possible to carry standardization even further than in the case of labels. It is generally found desirable to adopt a uniform design and color combination for all caps, for when this is done the cap can be used with any product and thus it is unnecessary to stock a large number of caps with a variety of lithographed designs to match each product packed. The same predominant color should be used on the caps as is used on the labels. However, it is frequently possible to produce lithographed caps which will harmonize perfectly with labels without using as many colors as are found on the labels.

Seamless Cellulose Containers

(*Continued from page 56*) flake or crack off even when the container is pressed together.

One of its common uses is in the packaging of mercurial ointments. Collapsible tubes for creams, pastes and unguents are being made in a variety of forms depending on the use for which they are intended. A nationally-advertised facial cream utilizes not only a seamless cellulose container but makes it a more fully all-plastic package by topping the tube with a resinoid molded closure. The tube is threaded to receive molded as well as metal closures.

Seamless cellulose containers are not expected to entirely replace those of glass or metal but successful applications of them are being found in various fields.

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Labels for Round Cans

Most of the trouble which is met in labeling can be attributed to the use of labels which are off size, improperly trimmed or printed, cross-grain or incompletely dried. The following suggestions will be found helpful and will save time in the mechanical application of the labels, making frequent readjustment of labeling machines unnecessary.

To determine the correct length of a label, add $^3/_4$ in. to the distance around the body of the can. It is generally known that wet paste on tin is likely to cause rust so that it is desirable to keep all paste between the two thicknesses of paper. For this and other reasons, experience has shown the inadvisability of using short labels, and in the interest of standardization the general adoption of the above rule is highly desirable for any size round, hermetically sealed, friction lid, screw top or slip cover cans.

To determine the proper width, deduct $^1/_{16}$ in. from the distance between the can flanges. It is impracticable to calculate on labels fitting snugly between the flanges, particularly on double seamed cans, because the distance between the flanges varies according to the adjustment of the individual closing machines. A full width label on a slightly narrow body will run up on the flange and fail to make a neat appearance. The slight clearance provided by adopting the above rule assures more uniformity in matching the laps of labels under varying conditions. On slip cover cans, the correct width is determined by deducting $^7/_{32}$ in. from the distance between the inside of bottom flange and the top edge of the lid.

The following are dimensions for standard size labels for double seamed cans of the sizes shown:

Can Size	Type	Size of Label
$2^{11}/_{16}$ in. x 4 in.	No. 1	$3^{11}/_{16}$ in. x $8^{15}/_{16}$ in.
3 in. x $4^{11}/_{16}$ in.	No. 1 tall	$4^3/_8$ in. x $10^1/_{16}$ in.
$3^3/_8$ in. x $4^9/_{16}$ in.	No. 2	$4^1/_4$ in. x $11^1/_8$ in.
4 in. x $4^{11}/_{16}$ in.	No. $2^1/_2$	$4^3/_8$ in. x $13^1/_8$ in.
$4^1/_4$ in. x $4^7/_8$ in.	No. 3	$4^9/_{16}$ in. x $13^{13}/_{16}$ in.

Particular care should be used in trimming labels to avoid tapering, i. e., the packs being wider at the bottom than at the top. Each pack should also be trimmed uniform in width, i. e., not wider at one end than at the other as it is impossible under such conditions to match the laps at both top and bottom.

It is well to have the laps meet in some sort of a circle style effect rather than in a straight line, because of the difficulty of trimming absolutely parallel to the border. A slight irregularity of matching at the border is not recognized with a circle effect design.

On embossed labels, arrange the design so that the embossing is distributed somewhat uniformly over the label instead of being concentrated in one spot. Don't run it closer than one inch to the plain or lap end, although it may extend to the other end if on both top and bottom border as well as in the center. When embossing is placed in the center only, the thickness of the pack is increased at that point, thus giving the pack an unevenness which renders efficient control impossible without frequent adjustments. The embossing should not be "overdone" as this causes the labels to cling together, making it difficult to separate them. If embossing dies are cut with round corners, labels will separate more readily.

White laps are more effectively sealed than either inked or varnished ones because any paste adheres less thoroughly to the latter. For this reason, label designs should extend only about $^1/_{16}$ in. longer than the distance around the can body. The length of the varnished surface should also be determined in the same way. It is especially desirable on friction lid and slip-cover cans to put the lap on the left end.

For high class or embossed work, a coated litho 25 x 38, 60 lb. to 500 sheets, makes the best label. A satisfactory label is also made from super-calender 25 x 38, 55 lb. to 500 sheets. Where a heavy varnished label is required, the stock must necessarily be lighter and a super-calender of the same dimensions weighing 52 lb. to 500 sheets is generally used.

The grain of the paper should run lengthwise on all labels excepting on those to be pasted all over, and shrunk on containers of baking powders, cereals, etc.

If the grain runs crosswise or with the width of the label it becomes tender after the lap is moistened and is more likely to tear while being stretched. Furthermore, the lap tends to curl back before the paste dries.

Too deep a register causes the labels to pucker up in the center, thus preventing the cans from getting a uniform contact at each side as well as in the center.

Raised Printing for Packages

(*Continued from page 36*) "X" base line of inks that made the process of producing permanent and flexible raised effects a simple printing process. Ordinary line cuts and type are employed on any high speed press and by an extension delivery the sheets are fed into the process machine which automatically completes the process at speeds up to 3400 per hour.

The development of this ink has opened up the packaging field to the process and for the past two years it has been used in packaging a rapidly increasing number of nationally known products.

Its chief advantage is that in one entirely automatic operation—an operation as simple as flat bronzing—it produces brilliant, clean, raised effects in gold—silver—or a combination of colors.

Process machines are less expensive than good-bronzers, while inks and compounds used in Virkotyping are so reasonably priced as to make the process especially attractive to those seeking true distinction in their packaging at moderate cost.

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Mailing Containers

By RALPH L. HARDEN

Mason Box Company

When over 500 pages of the Official Postal Guide, published by the Post Office Department, is devoted to rules and regulations, it may be readily seen that there are many restrictions placed upon the postal shipper. This means that your postal shipping problem cannot be thought of in terms of "just a box" but rather as the right type of box for the particular class of mail used or product shipped.

The time is past when a litter of old "empties" on the shelf will answer all the demands of the shipper. Today, with all the complexities of transportation, your package takes no pleasure jaunt or tour de luxe in its travels to your customers. In the sorting room, on the mail trucks or in the mail car of the Limited, it is rammed, crammed and slammed. The mail clerks play no favorites—big ones, fat ones and skinny ones crowd, punch and squeeze each other. Yours is among them—the survival of the fittest. Time is the important factor in the postal service; schedules must be maintained at all costs. Hence, no kid gloves are used. You, therefore, must use a container that is strong enough to stand the strain, yet light enough not to cost excess postage. It must comply with all Post Office regulations.

The following are descriptions of the more common types of mailing containers:

The Parcel Post Box: This box is used for all unsealed mail and because of the metal fasteners that securely close the box requires neither wrapping nor tying. The most widely used type of mailing container because of its simplicity, exceptional lightness and great strength.

The Fourth Class Box: This box is made to meet the demands of shippers using sealed Third and Fourth Class mail. An exceptionally strong box which, in addition to the metal fasteners on the sides of the box, has gummed flaps at each end which allow it to be sealed. The gummed flaps are an integral part of the box itself and are usually imprinted with a safety tint which prevents tampering without detection.

The Registered Mail Box: This box is made in a style and weight to meet the exacting demands of the Post Office Department for registered mail and requires no wrapping or tying. Usually made from extra heavy stock to give added protection; it is sealed by means of gummed flaps on the sides and ends. These flaps are printed with a safety tint which prevents tampering without detection.

The No-Break Box: This box is usually made in two styles; one with metal fasteners for unsealed mail and one with the sealing flaps for sealed mail, the basic construction, however, being the same. To the regular mailing box is added an inner lining of double faced corrugated board making absolutely the strongest mailing box obtainable. This type of box is extensively used for fragile goods, diamonds and jewelry, glassware, electrotypes and all products that need maximum protection.

The Letter Box: This is a two-compartment container that allows the first class letter or bill to be mailed together with second, third or fourth class matter and reach the addressee at the same time. The envelope compartment on the top of the box is an integral part of the box wrap. The window in the envelope compartment allows the address of the letter to serve also as the address on the envelope and box. The box is closed by means of metal fasteners. Extensively used for catalogs.

The Returnable Box: This box is made in two styles, both having the same general purpose of allowing the recipient to make convenient return to the sender. There is a cut-out in the cover through which a reversible address card shows. For memorandum or returnable shipments it is only necessary to reverse the printed address card and the box is ready for the return trip. Addressing and stamping for both forwarding and return can be done before the box is shipped on its original journey.

Screw Cap Containers: For shipments of liquids over four ounces, the Post Office Department requires that they be mailed in a water-tight tube closed by means of a screw-top cover with sufficient screw threads to require at least one and one-half complete turns before it will come off. Bottles must be surrounded with bran, wadding or other absorbent material in sufficient quantity to absorb all the liquid in case of breakage.

The Rigid Mailer: For photographs, sketches, proofs or any matter that must be shipped flat, this type of mailer should be used. A single piece of double-faced corrugated board incorporated with a wrap of heavy kraft paper allows the package to be shipped either sealed or unsealed.

The Locked Box: A novel tamper-proof box, known as the "Everlokt," which embodies a positive lock and is obtainable in various sizes. This box goes out by first class bonded mailing and after it is once sealed cannot be opened without destroying. A similar type can be used for third and fourth class mailing under an arrangement with the Post Office Department that provides for inspection and subsequent sealing.

Generally speaking all mailing containers fall into the above classes. Unusual products sometimes call for special treatment but their design incorporates one or more features of the above styles.

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Cartoning Machinery

By CHARLES L. BARR

F. B. Redington Company

The unusual interest in the development of cartoning machines* that has marked the activities of leading manufacturers of this type of packaging equipment since the latter part of 1928 has continued without any evidence of abatement through 1931.

Undoubtedly the most generally interesting development of the past year, and perhaps the most important to producers of cartoned products, is a new type of cartoning machine so entirely different in design and operation that it is bound to attract more than the usual amount of attention. The outstanding characteristic of this machine is that instead of pushing the contents into the carton, as has always been done heretofore, the carton is expanded and fed over the contents. Some of the advantages of this method will be obvious, such as the practical elimination of the possibility of marring the appearance of the contents whether these contents are collapsible tubes or jars or bottles, the labels of which are easily marred. Another feature is the unique and simple method used for feeding the carton from the magazine and expanding it.

Some other advantages claimed by the manufacturers of this new type cartoning machine are:

1. Reduction to an absolute minimum of the use of reciprocating motions resulting in higher speeds and infinitely smoother and quieter operation.
2. Entire elimination of cams for the first time in any type of cartoning machine.
3. Adaptability. Practically any of the usual cartoned products can be handled such as collapsible tubes, bottles, jars, bars of soap, candy, etc., including the handling of circulars and corrugated protectors such as is usually required of cartoning machines. Something under a dozen of the outstanding producers of cartoned products in this country have already installed this latest type of cartoning machine.

Probably second in importance has been the development of means to eliminate the manual task of feeding the contents of the carton onto the intake conveyor of the cartoning machine. For instance, the latest type of cartoning machines for collapsible tubes may be had arranged to automatically take the tubes from the latest types of tube filling machines with only the most casual attention of one operator. Also the most recently installed cartoning machines for handling bottles and jars have their intake conveyors so arranged that the bottles or jars may be discharged from the labeling machine directly onto them in an upright position thereafter being automatically laid on their sides to be cartoned.

Next in importance, perhaps, has been the continued development of adjustable cartoning machines. Within limits that have become well defined adjustable cartoning machines are now obtainable as completely reliable and as economically sound from an operating standpoint as any cartoning machine for one size. Time required to change from one size to another has been reduced to a negligible point and the adjustments simplified (*Continued on page 94*)

* It should be understood that the descriptive term "Cartoning Machines" used in this article does not include that group of packaging systems, including weighing units, lining units, cartoning units, etc., used for packaging coffee, cereals, soap chips, flour, and the like. This group of machinery will be found adequately treated elsewhere in this volume.

Automatic Wrapping Machines

By ALDEN FRENCH

Package Machinery Company

Automatic wrapping machines play a vital part in the production of a wide variety of packages. Articles that we use every day would not come to us in their protective and handsome wrappings were it not for the development of high speed labor-saving machinery whose economies make it possible to sell these packages at low prices.

The utilization of these machines is to be found in many industries: chewing gum, tobacco, soap, bakery, etc., where recent developments have greatly improved the packing methods, eliminating much of the hand labor by substituting automatic machinery to pack and wrap the various products.

Such products as tooth paste, cracker cartons, and shaving cream, which are packed in units of six or a dozen and shipped in cardboard boxes, can be wrapped now by an automatic machine in a heavy kraft paper. In this way considerable savings are effected both in handwrapping costs and in the cost of materials.

Bundling machines are used for cigarette boxes,

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match boxes, baking powder, ginger snaps, tapioca, graham crackers and a wide variety of goods which are sold in small packages.

The industries mentioned are only a few in which automatic wrapping machines are used. Candy, clothespins, collars and cuffs, face powder, razor blades, shaving cream, tooth brushes, spark plugs, bias tape and dry ice are a few other products that are now being wrapped automatically. This wide range of articles testifies to the large field that is being served by automatic wrapping machines which are now available in a greater variety than ever before.

The year 1931 witnessed various interesting and important developments in the wrapping machine field. Perhaps the most noteworthy accomplishment was the perfecting of equipment to handle moisture-proof transparent cellulose. This type of wrapping material has become increasingly popular—not only on account of the beauty that it adds to the package which it wraps but also because it now affords real protection due to the "tight-seal" method of wrapping.

This "tight-seal" wrap is a marked advance in package protection. The old method of sealing wrapper merely by gluing it into place made a neat, beautiful package, to be sure, but the wrapper was like a leaky boat—and it contributed little besides good looks to the product which it enclosed. The "tight-seal" has stopped the leaks. Instead of touching only a few vital spots with an adhesive the latest machines now make a firm tight bond between all the folds and laps of the wrapper thus utilizing to the fullest extent the inherent moisture-proof qualities of the cellulose sheet.

Perhaps the best known examples of the "tight seal" are the leading brands of cigarettes which within the last year have appeared in the new "humidor pack." These cigarettes are all wrapped by the same make of machine developed especially for them by the leading wrapping machine engineers. The "tight-seal" method is rapidly becoming popular as it has been adapted for use on other types of packages. The combination of beauty and maximum protection for the product both from within and without makes a wrapping that is hard to excel.

Another important development is a new adjustable carton wrapping machine combining great flexibility in the style of wrapping, simplicity of design, ease of change from one size to another, high speed and moderate price. Ease of adjustability is perhaps the chief feature. This is obtained by hand wheel controls, readily interchangeable parts and simple screw adjustments. A wide range of sizes is permitted without sacrificing quality of wrapping.

The machine can be equipped for transparent cellulose, waxed paper, printed wrappers or glassine paper. End seals are optional, and the "tight seal" wrap for cellulose is of course available. New principles of construction were employed in the building of this machine. The various parts such as the paper feed, discharge conveyor, and seal mechanism, etc., are assembled as separate units and are easily detachable from the machine. A change in the style of wrapping is therefore possible without completely rebuilding and is accomplished merely by the substitution of one unit for another. This feature has two important advantages; it enables the user of the machine to meet changing styles of wrapping, and it reduces the manufacturing cost of the machine.

Convertibility in Automatic Package Wrapping Machines

By Arthur H. Axberg

Johnson Automatic Sealer Company

Today the consideration of wrapping machines built to handle more than one size is a most important one to the buyer of wrapping machinery. The consideration is important, even though the buyer has only one size package in mind and could secure a one-size machine, which would be non-convertible, for the wrapping of that package.

New goods and new package sizes are being offered and tested in various markets to such an extent that the buyer must protect his machine investment in the event a change in size is made or more than one package is required to be handled on the same machine. Convertibility can now be offered with present models to obtain an efficiency equal to the non-convertible type.

In describing the usual type of wrapping machine which accommodates more than one size package the term "Adjustable" is often used and this is correct in description. It is adjustable in the sense of requiring two or three hours of a skilled mechanic's time to adjust the machine from one size to another, using wrenches, tools, etc., for the changing of parts, their location, etc., and unfortunately resulting not only in a loss of mechanic and operator's time but hours of production, and sometimes waste of material to adapt the machine from one size package to another and to obtain the correct and satisfactory wrap.

A convertible machine amounts, in effect, to several non-convertible machines with the efficiency of a non-convertible machine built into one frame. With

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a convertible model the important parts, relating to the proper application and folding of the wrapper about the packages, are all built into a complete table with all associated parts attached. These are quickly locked into a fixed position and are as quickly removable, eliminating the hazards of adjustability and in addition effecting a more economic wrapping operation by producing saleable wrapped packages without the usual attendant delays in losses experienced due to the human element of adjustability. The use of a convertible machine permits the removal of equipment built exactly to handle one individual size package, substituting in its place equipment built to handle another size package, pressing the starting lever and wrapping the second size.

Convertible wrapping machines are built in several models to cover a wide range of sizes, and in many instances as many as six to ten varied but related sizes of packages are handled on the same machine, often involving the shifting from one size to another three to five times per day. Plain or moisture-proof transparent cellulose can now be used for wrapping material as successfully as the familiar waxed or glassine paper.

Such articles as packages of envelopes and stationery, trays containing marshmallows, rubber dolls, candy, dates, cookies, etc., as well as the familiar packages of coffee, tea and spices are wrapped on these convertible models. Either air tight end sealing or the usual type of end foldings are optional for the different sizes and kinds of packages to be handled. Selection of machines and models can also be made to wrap packages over on their side with the long longitudinal seam on the narrow panel, or flat, as the customer may desire.

The manufacturer of packaged merchandise with the ever-changing requirements resulting from keen competition or a desire to push forward can be well protected with this possibility of grouping a number of different sizes on the same machine. Convertibility is perhaps the most important thing, together with the successful functioning of the wrapping machine, that can be considered in the use of wrapping equipment today.

Collapsible Tube Filling

By H. G. ADDISON
Arthur Colton Company

The constantly increasing use of collapsible tubes is due in no small way to the ease of operation and flexibility, as to changes in size, of the modern tube filling equipment. A complete outfit for filling, closing and clipping collapsible tubes may be purchased for as little as $130 and this will perform these operations at 15 to 20 tubes per minute. The small user of collapsible tubes is thus almost as efficient, right from the start, as the larger user. A complete range of equipment of various sizes is available without the necessity of building any special equipment. For less than a thousand dollars a complete outfit to turn out 35 tubes per minute can be had. As production warrants, this output can be increased to sixty or eighty tubes per minute. A new completely automatic filling, closing and clipping machine operates at speeds up to 140 tubes per minute with one operator and is designed to feed directly into automatic cartoning machines.

Considering the work they perform, modern tube filling, closing and clipping machines are remarkably simple and can be maintained in proper operating condition by careful employees. No unusual mechanical skill is required in making the various adjustments for different sizes of tubes, and if those considering the use of this equipment for the first time will put their problem up to a reputable maker of this class of machinery, they can rest assured that the machines will perform to their satisfaction.

The selection of tube filling equipment depends on three important factors: first, the consistency of the material at the time of filling; secondly, the range of sizes of tubes; third, the daily production which is to be anticipated by the plant.

If possible, materials such as cold creams, ointments, etc., should be filled in a warm fluid condition, as much simpler filling units can be employed. At the same time, it is unwise to fill tubes with any material in a warm state, should the material shrink considerably on cooling. This shrinkage will buckle the wall of the tube, giving it a partially empty appearance, which is undesirable in the eyes of the ultimate purchaser.

It is also common for a tube user to attempt to overfill a tube in order to give a "fat" appearance and impress the purchaser with the quantity of material he is getting. This over-filling of tubes is efficiency's greatest enemy as it is necessary to stop frequently and wipe off the jaws of the closing devices. In addition to this, these tubes are most liable to leak after being on the dealers' shelves under unusual climatic conditions. A properly filled tube has sufficient flap on the closed end to allow material to expand without seepage through the closed and clipped ends. An "overfilled" tube will usually have a layer of the material inside the fold of the tube, and if the material is even mildly corrosive, such as a shaving cream, the tube decoration and the clip, if used, will soon be spoiled in appearance.

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Two methods of sealing the tubes after filling can be used. These are the use of a double fold, as in the past, or the use of "clipless closures," two of which have been introduced during the last year.

The closing of tubes using clips is done as follows: The end of the tube is flattened, a portion of it turned over, and pressed flat. This operation is then repeated, all automatically, of course. For material, such as lighter fluid, rubber cement, rubber solvents, etc., containing highly volatile material, it is sometimes advisable to make the first portion turned over wider than usual, with the second fold the regular width. This gives eight thicknesses of material rather than the six thicknesses obtained with the regular fold, and in reality makes the seal fifty per cent more secure.

After the closing operation, the clipping is performed. This guards the end of the tube and prevents accidental opening of the folded end. Tube clips are cheap and are applied automatically by most users. At the time the clip is applied, a control number can be stamped on one side of the clip if desired.

One of the clipless closures referred to above consists of making the two usual double folds and then turning the corners back obliquely. The other type is accomplished by making the two usual double folds, with the second fold wider than is customary. The double fold is then folded in a reverse direction and corrugations are applied to give added strength and security to the tube contents.

A decorative band to match the tube decoration can be used on the end of the tube to enhance its appearance. Control numbers or dating codes can be stamped on the tubes using the clipless closure. Ejection of the tubes from the machine after the three operations of filling, closing, and clipping are performed, can be automatic or manual as desired.

Labeling Machines

Labeling machines have been developed along with the filling, screw-capping, cartoning and wrapping machine to such an extent that they are of equal importance to the manufacturers for many reasons. Nor is their sphere limited only to the food, drug, chemical, toilet preparation and bottling industries, but they find their way into the cigarette and cigar factory, hardware, hosiery and almost every line where labels are used. Mop and broom handles are now labeled by machines, likewise insecticide sprayers and wet-stones.

Some of the advantages of the modern labeling machine are the following: It produces a large output, occupies a comparatively small floor space, labels neatly, accurately and uniformly.

Labeling machines may be classified, first, as semi-automatic and automatic and the latter as rotary, straightaway and can labelers.

The semi-automatic labelers were designed primarily for the labeling of beer and similar bottles, but their use today covers almost the entire labeling field. They are in greater demand today than ever because even the small manufacturer believes in machinery for its economy and superior quality of the work performed. The semi-automatic labeler, however, requires an operator to feed each package or container to be labeled. The article is placed into the machines by hand, the label or labels are applied and then the article removed from the machine by the operator. The speed of these machines being limited to 25 to 30 articles per minute or less, depending upon the character of the article and the energy of the operator, led to the development of the fully automatic labeling machine. Nevertheless, the semi-automatic labeler will always be popular and profitable for small production and where short runs of many different sizes and shapes of packages must be labeled.

The automatic rotary labeling machine, which is an outgrowth of the semi-automatic, gums the label and applies it in a similar manner, but it has incorporated conveyors for feeding the articles through the machine without handling by the operator and therefore is much faster than the semi-automatic labeler, attaining a speed of 85 to 90 per minute. A recent important improvement in this type of labeler is the attachment for applying tinfoil around the neck of ginger ale and like bottles. They are furnished by several concerns and are particularly adapted to the labeling of round bottles and jars used in the bottling and food industries as well as some chemical and drug products. They apply on bottles, the body label only, the body and neck label or the body and neck labels and the tinfoil.

The straightaway type of automatic labeling machines, which are of more recent design than those above mentioned, go further into the general field of labeling because they can be adapted to sealing or labeling cartons, boxes, wrapped cakes of soap as well as the food, drug and bottlers' products. They have many advantages in the way of speed, accurate registration, cleanliness, adjustability and accessibility. They are built in two standard types known as single and double labelers, both of which types are also furnished in the duplex models.

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The single labeler applies one label on one side of the package or container and the double labeler two labels on opposite sides simultaneously.

The single duplex labeler applies one label on each of two packages or containers at the same time and the double duplex four labels on both sides of two articles simultaneously. In other words, if these machines are running sixty revolutions per minute, the single will apply 60, the double 120, the single duplex 120 and the double duplex 240 labels per minute although the machine is running comparatively slowly.

The duplex labeler is a recent development born of the insatiable American demand for speed and production. In order to keep pace with the filling, capping, cartoning and wrapping machines, all of which are often hooked up with an automatic labeler in a straight-line production unit, it was necessary to get greater output from the labeler without applying the glued label in less time. It requires time to apply glue to the label and more time to make the label adhere properly to the container, therefore the slow running duplex labeler can do a better job than the single machine speeded up which seemingly throws the label at the package without sufficient time to apply it properly.

No less important is the perfection of another automatic labeling machine for round bottles where the name of the product appears in raised lettering on the bottle. In such instances it is an absolute necessity to "spot" the label in a determined position in order that every package will be labeled and look alike with respect to the lettering in the glass. Previously this was done by hand or on semi-automatic machines where the best was a good guess at the proper spot for the label. Some manufacturers have discarded their trade mark on the bottle because of the inconvenience in placing the label accurately and automatically. To bring more forcibly to mind what the spotting labeler can do, just stop to look at the "Vaseline" and "Listerine" bottles in your medicine cabinet. Such bottles can now be adapted where the name of the product is in the glass to tell you what it is after the label is destroyed and with the knowledge that they can be properly labeled by fully automatic machines.

Regarding the quality of the labeling done by hand and by machine, we often hear a manufacturer say that no machine can do this work well enough. Let us illustrate by referring to the labeling of cigar boxes which are perhaps some of the best labeled packages in our showcases. The labels are beautiful, of many colors, embossed and cut neatly and accurately. Until recently they were applied by hand, which almost ruined their good appearance and lustre. Because—paste was used instead of glue it soaked the label and destroyed the colors. Then it was placed by hand and wiped on which a rag which killed the embossing and smeared the colors. Today the automatic machine applies thin glue quickly, applies the label at once and places it even more accurately than the hand. The result is that the moisture in the glue does not have time to penetrate the label, therefore the embossing and colors remain just as the printer made them.

Incidentally, it might be said here that 95 per cent of a cigar box can be made on automatic machines which insure their uniform shape and size just as the machine-made bottle is uniform, which requisite is most important for machine handling. Unless uniformity in size and shape is obtained, efficient labeling is impossible.

Can labeler. Where full length labels which overlap are applied to round containers, the universally known automatic round package labeler is in general use, one type of machine being for hermetically sealed, friction lid and screw top containers, while another is for slip cover containers. One or the other types of machine are employed in the food packing and kindred industries, including paints and specialties and the other in most of the coffee plants as well as several salt factories. Cans with ears such as large packages of paint are also automatically labled through utilizing a full length label which overlaps and is died out to encircle the ears, thus supplanting the front and back label formerly used. Glass containers have also come within the scope of the automatic round container labeler, nationally known products like Sal Heptica being labeled on this type of machine as well as glass containers of insecticides, toilet preparations, fruit juice, etc.

This type of machine can operate at a speed of from 150 to 250 or more packages per minute because of the fact that the packages are rolled through and a comparatively simple and speedy form of mechanism can thus be utilized, hence the automatic round package type of labeler is the speediest mechanical medium available and fulfills all the necessary requirements.

Modern factory practice has demonstrated the importance of machine production and that manufacturer is wise who leaves no stone unturned to place all of his manufacturing on a machine basis. The use of machinery in the finishing or packing department is as important as in the actual processes of manufacture and the manufacturer who extends his machine methods to these departments is bound to profit more than the one who does not.

In general, a labeling machine can be equipped with attachments to handle a manufacturer's package without alteration but occasionally a minor change in container or label will simplify the work and enable the labeling to be done with a minimum of care. Where new packages or labels are designed it is well for the manufacturer to bear in mind a few simple facts that will enable him to favor the labeling

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machine and to operate under the most ideal conditions. The best labels are made from thin paper, soft and comparatively light in weight so that they will conform easily to the shape of the container. The surface of the container should be such that the label will naturally follow the contour without wrinkling. A spherical surface is impossible for the label must curve in two directions and will not lay smooth. Where hexagonal, octagonal or similar containers are used the size of the label should be such that the edges of the label should extend well over the corners of the container and on the flat sides to prevent the edges of the label from becoming loose after the label had been wiped on and the container removed from the machine. The observance of these rules will make for efficient practice

Carton and Can Filling Equipment

By WILLIAM K. EMBLETON

Pneumatic Scale Corporation, Ltd.

The development and perfecting of automatic machinery enables the packer to obtain quantity production at lower costs, to standardize the sizes of his packages, and enable him to carry to the consumer, through the message printed on his package, a standard name or trade mark by which the consumer can again seek his particular brand of products. This insures the packer his reward for maintaining qualities.

There is no necessity for any manufacturer to depend on hand labor in preparing his package, as American machine designers in the last decade have developed and refined automatic machinery for every packaging purpose to such an extent that today a machine is obtainable whether the packaging process follows standard practices or is of a special nature.

Inasmuch as machinery must be considered somewhere in all packaging production plans, the first consideration is the positive necessity for careful attention and preparation of the various component parts in the make-up of the package.

This thought cannot be stressed too highly. All materials entering into the make-up of the package should be purchased with a view to their efficient handling by automatic machinery.

As for instance, in considering a carton product, the size of the carton should be carefully worked out to obtain the best dimensions for easy machine handling. The construction of the carton should be carefully planned to be sure that the side gluing seams are in proper position, and the side flat cut to the proper length. Careful attention to these details in the beginning will save both the packer and the machine manufacturer a great deal of trouble and grief when the time comes for installing machinery.

This does not mean that cartons, protective papers or labels for machine handling differ importantly from the same materials that would be used for hand packing. It simply means that there are certain necessary features and specifications to be followed to make sure that all materials will follow uniform lines. All cartoning materials handled on automatic machines are manufactured on accepted commercial standards, but it must be borne in mind that a machine is made of iron and steel, along fixed lines, and if the material fed to the machine differs in size and shape, then trouble is bound to ensue.

As an illustration, if sealing and filling were the only consideration, a carton might be planned to obtain the largest possible face, perhaps because an advertising advantage might be seen. In doing so, the base of the carton would necessarily have to be narrow, so much so that when handled on a machine, this narrow base would mean a constant tipping of the carton, with its attendant troubles and delays.

Therefore, in planning a carton, care should be taken to have the various dimensions properly proportioned. The ideal specifications are to have the face of the carton approximately twice the thickness, the height one and one-half times the width. The cubic content of the carton must be carefully considered. If a pound of ground coffee is to be packed by hand, a carton containing about 66 cu. in. would be sufficiently large for the reason that there is no time limit to the tamping or settling of the coffee, whereas if the carton were handled by machine a cubic content of 72 cu. in. would be necessary for the reason that the carton passes through the machine on a certain definite time schedule and receives a definite amount of tamping. Machine experience proves that with a carton containing 72 cu. in. a pound of ground coffee would settle nicely just below the score or folding lines of the side flaps.

Labels and wrappers with the grain of the paper running the same as specified by the machine manufacturer should be obtained. Paper curls with the grain of the paper and when labels or wrappers are moistened, the paper stretches with the grain. If the labels are handled by hand, sometimes it is not important which way the labels curl or the way the paper stretches, but if handled by machine the curl and stretch must be one way, and the same with every label.

Label and wrapper manufacturers are always glad

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to follow definite specifications for grain of paper when so ordered. Again, it is simply a question of care in ordering and being sure that the specifications are correct.

Any manufacturer of automatic packaging machinery will be glad to furnish definite specifications covering the construction of cartons or the make-up of labels. Securing these details will save many weeks of labor later on when machine production is planned both on the part of the packer and the machine manufacturer.

Many packers hesitate in the beginning to think of using machinery, believing that automatic machinery will prove too expensive for their purpose. Investigation will prove this is not true, as machine manufacturers are able to furnish equipment that will economically fit in with the requirements, not only of the larger packer, but also with the packer whose output is small.

The market today offers every thing from inexpensive semi-automatic equipment, which operates at comparatively low speeds, to the highly specialized fully automatic equipment, operating at the higher speeds, and no matter which class of machinery is used, they are all planned so that with their use outputs can be obtained more efficiently and economically than by hand labor.

Packers just establishing a carton packaging business can install a semi-automatic carton sealing machine. This would require the services of an operator and would produce from 12 to 15 satisfactorily sealed cartons per minute. For the weighing operations, he can obtain a small semi-automatic weighing machine which will operate at the same speed as the carton sealing machine. These two machines can be hooked together by connecting conveyor belts so that, as the cartons are sealed, they are automatically passed along to the weighing machine. An operator would be necessary at the weighing machine, but even considering the investment of the two machines, the upkeep charges and the labor costs of two operators, packages can be produced at a far less cost than the same number can be produced by hand labor.

As outputs increase, speedier and more fully automatic equipment will be needed. The semi-automatic machines can then be discarded in favor of a battery of machines with which can be performed the entire operation of picking up the cartons one by one, feeding them to the sealing machine, then automatically passing them to the weighing machine and, after the material is weighed and filled into the sealed cartons, passed to the sealing machine for closing and sealing the tops.

Should the product be of a character to require extraordinary protection against atmospheric or other conditions an inner paper bag liner would have to be used. This lining would require an additional machine placed between the bottom sealing and weighing machine, the lining machine taking paper from a roll, cutting off the proper length, forming the bag and inserting the finished bag into the carton.

A set of machines of this character would make the entire packaging process entirely automatic, only one attendant being necessary to see that the machines are properly oiled and kept in good running order.

Equipment as above described would deliver thirty complete sealed, lined and filled packages per minute.

For the packer whose output exceeds 15,000 packages a day, equipment of higher speeds will be necessary and equipment at 60 packages per minute will interest him. This high speed equipment performs the same operations in the same manner as described for 30-per-minute equipment in the same general line-up; each individual machine, however, is more sturdily and elaborately constructed, and naturally, this heavier equipment is considerably more expensive than that operating at the lower speed of 30 per minute.

The equipment just described would be used by the manufacturer packing in the plain printed carton, used without any outer wrapping. Materials such as tea, coffee, spices, sugar, rice, borax, coconut, drugs, poultry and stock remedies, macaroni, starch can be packed without any further protection than the printed carton, with sometimes the inner lining.

In many instances the character of the material packed may demand a package that would offer greater strength than the printed carton, and would also embody superior protective features. The modern machine designers have met this higher requirement with a machine called the tight wrapper, which produces the highest type of pakage yet devised. Reference is made to this type of packages elsewhere in the PACKAGING CATALOG.

The foregoing treats of rectangular packages only. Separate types of machines are necessary for producing round packages, but as in the case of the rectangular package, automatic machinery can be obtained for every process in the make-up of the round package, first weighing material and filling it into the package, then applying the cans and labeling.

Round packaging equipment is manufactured in various types, ranging from the semi-automatic at slow speeds to the high speed fully automatic equipment operating at a speed of 60 per minute.

The weighing machine units include those that will weigh gross, that is, including the weight of the container with the weight of the goods; others that weigh the material net. This is accomplished by weighing first in calibrated and balanced receivers, after which the material is poured into the waiting containers. Net weight weighers are particularly desirable where the material handled is of an expensive nature and extreme accuracies desirable. The savings in wastage alone with this type of

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machine often pays the cost of the machine in a short time.

Practically every labeling need can now be met with machinery of standard construction. This includes loose labeling machines, which apply the label loosely around the can, just applying the glue at the seam of the label or a rim of glue around the top and bottom of the label. Types of loose labeling machines are manufactured for labeling either round or rectangular cans. Then, there is the shrink-tight labeler, which is necessary for use when cans with high outstanding beads are to be labeled, these similar to the standard baking powder cans, or where the covers of the cans are of larger diameter than the bodies. Loose labels cannot be used with this type of can, for the reason that the high outstanding bead or the larger covers hold the label away from the body of the can, producing unsightly wrinkling, and a label only half attached.

The shrink-tight labeler overcomes this difficulty by passing the label through a bath of tepid water. This allows the label paper to stretch, the stretch in the label paper being about $^3/_8$ in. to the foot. Adhesive is then placed over the entire unprinted surface of the label while it is wet; it is then carefully registered around the can, which is passed along to an automatic dryer. The air in this dryer is heated. A series of revolving shelves move slowly around, so that the label dries gradually, and in so doing, shrinks tightly around the high outstanding bear or the oversized covers, as the case may be, without the slightest wrinkle, and insuring the covers being held tightly to the bodies of the cans, eliminating any possibility of leakage. About one-half hour is required to make the journey around the dryer, after which the can is automatically ejected and is ready for subsequent packing operations.

Practically all types of carton packaging, filling, wrapping or labeling machines are constructed so that they can be adjusted to several different sizes of cartons within reasonable range. Different commodities can be handled on the same machine where the characters of the commodities do not change too radically. This is done by fitting the filling machines with hoppers especially designed to meet the requirements of the different products.

Care should be taken when purcashing machines to choose manufacturers who can assure a reliable service that will maintain the machines in good working condition, and so guard against any break in packaging operations which will curtail output.

Dry Product Filling

By A. J. STERLING

The art of dry product filling is fundamentally divided into three distinct classes of machinery or methods: packing—wherein the quantity is determined by the density in the container; volume—wherein the quantity is determined by measuring the material by means of a definite number of turns of an auger; weighing—wherein the quantity is determined by scales but equipped with force feed into buckets and a settling conveyor.

The construction of machinery to accomplish any of the described methods varies according to the individual manufacturer and his engineering capabilities. Some of these machines are more complicated than others and it is well, therefore, to remember that simplicity of construction and performance is that which stamps fine engineering and longevity of the machine with the least possible amount of expenses for upkeep. It is this simplicity of construction that goes far toward procuring exactness in weights. Too many cams, electrical contacts and unnecessary movements bring about the reverse of exact weights and the need of too many mechanics.

All dry materials can be divided into two general clasifications—free flowing and non-free flowing materials. In a way, the names of these two divisions are self descriptive, but there are many kinds of materials which apparently are free flowing but as a matter of fact cannot be so classed. Practically all free flowing materials can be weighed, whereas the usual method of measuring non-free flowing materials is either by volume or by packing. Each one of these general classifications has many divisions and, as might be expected, the dividing line between the divisions with some kinds of materials is very finely drawn. There are many materials which at times come so nearly meeting the description of either classification that it is difficult to tell which classification they belong to.

Referring to the free flowing materials, we find the range from very coarse materials that have no tendency to stick or arch down through to the so-called free flowing materials which need some assistance in the form of agitation or pressure to make them flow freely into buckets. Of course the type of machine will depend somewhat upon the character of the material, but in general all of these types of materials can be automatically weighed. Practically all types of automatic weighing machines work on the principle of weighed load shutting off the flow of material into the weighing bucket. This means that there must always be a certain amount of material between the load in the bucket and the cut-off point,

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and the accuracy of weighing is dependent on the uniformity of the flow of this stream of material and the quickness with which the mechanism operates to cut off the flow from the action of the descending bucket.

The problem of handling non-free flowing materials is more complicated as the differences in the character of the materials are more marked than in free flowing materials and the characteristics of the non-free flowing materials cause more difficulty in handling it.

Methods of Filling

There are two methods of filling non-free flowing materials: first, by packing, and second, by volume filling. In certain cases the material is required to be put into containers with greater density than the normal conditions of the material would permit, and in such instances the material is *packed* into containers. The amount which goes into the container is determined by the density of the material in the container, and when the required density has been obtained the feeding mechanism is tripped so that the flow of material is stopped.

When the amount of material required in the container is not greater than that which can be held with the material in the normal condition or with a small amount of settling, the method of volume filling is used. This is really a measuring method and when the proper amount has been measured out the mechanism is stopped. One of the great advantages of handling materials by the packing method is that in a material where the consistency is constantly changing the variation in volume will be automatically taken care of because the amount of material is based on the density of the pack rather than on the amount of material in a certain volume. The volume method of filling is sufficiently accurate for materials where the consistency is reasonably uniform.

There are some kinds of material which have some characteristics of free flowing and other characteristics of non-free flowing materials, and in handling these kinds a combination of net weighing with volume filling is employed. It is hard to lay down definite rules for classification of materials because there are so many varying elements entering into the determination, and the selection of the proper equipment to handle different kinds of dry material can only be made after a broad experience in this field.

Therefore it is well when endeavoring to choose a machine suited for the particular work at hand to study the problem thoroughly and to submit it to some manufacturer well known for his accuracy and for the work that he has done in similar fields. That which may have been accomplished, in what appeared to be the same as your particular problem, may be accomplished in the same manner and yet many require entirely different treatment.

Bottle Filling Equipment

By E. E. FINCH

The Karl Kiefer Machine Company

The term "bottling equipment" is of comparatively recent origin. Twenty-five years ago, with the exception of large breweries and a few soft-drink establishments where automatic filling and closing machines were used, complete bottling equipment was unknown. At that time very few liquid products were sold in bottles. There are two very distinct lines of bottling endeavor, one for the handling of carbonated beverages, the other for the bottling of what is commonly known as "still" liquids.

The development of filling machines for "still" liquids may be divided into three decades and three stages and generally can be referred to as three systems or methods of filling. These may be classified as filling by the siphon method, by the direct pressure method and by the vacuum method. The equipment may be referred to as the very simple hand-operated machine, then later with the semi-automatic machine and finally with the large full automatic machines. The syphon type, hand-operated machine was in use from 1900 to about 1910. The pressure type machines from 1910 to near 1920 and the vacuum machines from 1918 to the present. During the first decade there was a very limited sale of bottled goods and, therefore, no demand for other than simple machines.

In 1900 there were available two types of syphon filling machines, rather limited as to use and production. They were known as the Edson syphon filler and the Kiefer Perfection syphon filler. Both were six stem machines and were designed for filling bottles from half-pints to quarts.

Syphon Method of Filling

The syphon method, briefly, makes use of a supply tank with a float valve, the liquid coming from a storage tank into this supply tank and when it reaches a certain level the liquid is shut off automatically by the float that operates the inlet valve. Connected to this tank are the filling stems. Bottles are placed on the filling stems and the syphon is established by different methods, either by suction through the stem or by air forced into the supply

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tank, and the flow continues into the bottle until the liquid level in the bottles is on a level with the liquid level in the tank.

An adjustable bottle table takes care of the various heights and sizes of bottles, and a very accurate fill is obtained. The method, while slow, was eminently satisfactory for the requirements of that day.

The first development of what might be called a bottling unit or complete bottling equipment occurred about 1910. Just prior to that the states of Georgia and Alabama went prohibition and mail order liquor houses came into existence. Both the mail order liquor houses and distilleries immediately found it necessary to bottle liquor more rapidly and more economically than they ever had in the past and thus was developed bottling equipment consisting of bottle washing machines, filling machines, corkers, labeling machines, belt conveyors, etc. This business continued to grow until about 1915 and during that time larger and better filling machines were developed.

The syphon method of filling was improved by larger semi-automatic and some automatic rotary machines. About 1910, or the beginning of the second decade, there came into existence the straight line direct pressure filler. This latter type of filling machine was made as a straight line machine, six stems to the line and filled six bottles at a time. The liquid came from a supply tank above the machine directly through the filling head and stems into the bottles. The head of the filling machine was lowered, the stems entering the bottle, with a rubber seal resting on the mouth of the bottle making it airtight.

The stem was a double unit with an overflow or air outlet tube and a filling tube. As the liquid entered the bottle the air escaped through this overflow and when the liquid had reached the air outlet, it was filled to the desired height. If the head was allowed to remain down the liquid continued to overflow through this overflow tube, the various stems connecting to a manifold and the overflow running off into a container at the side of the machine or into a pump, which returned the product to the supply tank. This type of machine was efficient, made in various sizes and was a decided step forward from a production point of view over the old simple syphon machines. Up to 40 and 45 bottles a minute were obtained by this type of machine, and they are still used, having been found to operate efficiently when used in filling strong, sturdy bottles.

Direct Pressure Method

The direct pressure is perhaps the simplest method of filling but it has certain objections. If a bottle is chipped or cracked around the mouth or is imperfect in any way the liquid continues to flow into the bottle and through the bottle on to the machine or on the floor. If a piece of the bottle breaks in filling hot products, as sometimes occurs, the liquid flows through that aperture until the filling head is raised.

There were also developed some automatic rotary machines of the direct pressure type that were highly efficient and quite wonderful when considered from a viewpoint of the day. Some of these machines are still in operation.

Along about 1914 with the increase in the merchandising of small packages there arose a necessity for a filling machine to fill not only bottles but also glass jars and tin cans of various types. There were products of a viscous nature that could not be handled by a syphon method or even by the direct pressure method. As the demand increased for a machine to handle viscous products such as jams, jellies, preserves, mustard, syrups, ointments, paints, varnishes, etc., there were developed measuring types of machines and these were of two general types and known as the rotary gear type and the piston type.

In the rotary gear type a special spiral gear pump was invented that in operation on the filling machine measured an exact quantity into the container, as it was automatically carried around the filling head. Changing of gears changes the speed of the pump according to the quantity desired and the speed at which the machine is operated.

The machine is also equipped with a friction drive for the finer accuracies desired for measuring an exact quantity into a container, and has been developed to a point where it measures to the fraction of an ounce, giving the accuracy desired in filling small as well as large containers. It is today used for filling all viscous and semi-viscous products such as paints, oils, creams, ointments, mustard, etc., although some improvements and developments have been made; and where originally a speed of 40 a minute was considered ample, new machines now operate at a speed of from 90 to 140 containers per minute.

Piston Type Machines

There are two styles of piston type machines. In the first the product flows direct from supply tank to the cylinders of the machine and in the other the product flows into a hopper located directly above the cylinders. In both types the piston is set to deliver a predetermined quantity at each stroke. As the piston is drawn back in the cylinder, the liquid follows or is sucked into the cylinder and then on the reverse stroke is forced out of the cylinder through filling nozzles into the container. These machines are made in various sizes with production possibilities of from 25 to 100 containers per minute.

While the increase in the distribution of liquid products in bottles was considerable from 1910 to 1918, the tremendous development really began about 1918, and with the exception of the slight slump in 1921 and part of 1922, has continued to grow to a surprising degree. Where a factory had a production of one hundred gross of bottles a day in 1918, which

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was considered something out of the ordinary, today hundreds of factories do as much and a great number of factories each produce several hundred gross per operating day.

Naturally with this tremendous increase in bottled goods of all sorts there developed an increase in sizes and types of bottles. Peculiarly shaped bottles, very small bottles were, and to some extent still are, difficult to manufacture with a guarantee to perfection. Attempting to fill such bottles at a high rate of speed and a percentage imperfect meant tremendous loss in production as well as in the product itself and the extra labor entailed.

The old type of pressure machine would not do and thus there came into existence the vacuum type of filling machine. Originally this was a simple device, a hand arrangement that filled one, possibly two bottles at a time.

It was at once obvious that in the filling of small bottles such as those for perfumes, extracts, and similar products where the percentage of bottle imperfection was very large, the vacuum method of filling eliminated entirely the loss of liquid because it would not fill an imperfect bottle. Machinery manufacturers were not slow to see these advantages and various types of machines have been developed.

Today there is still the simple single stem and double stem hand vacuum filler, the small semi-automatic straight line machines, the tray type machines, the large automatic rotary type machines and the automatic straight line machines.

In the direct pressure machine the supply tank was above the filling machine and the product flowed by gravity from this tank through the head and thence through the stems of the machines into the bottles. As the liquid flowed in, it forced the air out ahead of the liquid.

In the vacuum machine the product comes from the manufacturer's supply tank into a small supply tank on the filling machine, located below the filling head or stems. The vacuum produced in the bottle first draws the air out and thus the vacuum established in the bottle draws the liquid from the small supply tank.

Operation of Vacuum Machine

The vacuum machine is extremely simple in its method of operation. The stems are connected by such methods as the various manufacturers of these machines may employ to the small supply tank on the machine. The stem is really a multiple stem, having two openings. Located on the stem is a rubber seal which may be adjustable, and the lower end of the stem enters the bottle to the height at which it is to be filled. At that point the mouth of the bottle is resting firmly against the rubber seal on the stem. Immediately the mouth of the bottle comes in firm contact with the rubber seal; the vacuum, which is produced by either individual vacuum pumps or a general vacuum system in the plant, draws the air out of the bottles through the smaller of the two openings in the stems. When that occurs the liquid naturally follows through the other opening or filling line, fills the bottle up to the air outlet and if the bottle remains in contact with the seal the excess liquid overflows through the air or vacuum line into a vacuum bowl and by means of an ingenious device is automatically returned to the supply tank on the machine. If all connections are tight, if both the air line and the filling line are clean and free, then all perfect bottles will be filled.

The methods of handling the bottles to and from the machines are varied. On some straight line machines the bottles are brought in under the filling stems, the head of the machines is lowered, stems entering the bottles, and the rubber seals on the stems are firmly compressed against the mouths of the bottles. In some other types of machines the bottles are raised, the filling head remaining stationary.

In automatic rotary type machines, bottles are fed automatically from a conveyor into the filling machine. Each bottle is handled on a separate lifting tray, and after being filled is automatically discharged from the machine on to a conveyor.

Straight Line Machines

On straight line automatic machines the bottles are carried forward on a conveyor and automatically transferred from the conveyor to a platform which raises the bottles up to the filling head. After being filled the bottles are again automatically placed back on the conveyor. Only partial vacuum is necessary to fill the bottles. In handling heavy products at high speed, vacuum up to 18 in. to 20 in. may be used, but the average liquid filled in the average bottle requires only from 3 in. to 7 in. of vacuum. To give a more specific illustration, on some of the larger automatic rotary machines filling a product such as catsup at a speed of 100 pint bottles per minute requires not more than 8 in. of vacuum.

The advantages of the vacuum method of filling are so varied and so great that this type of machine has almost entirely superseded the older types such as syphon and pressure machines.

The accurate measure type in which the liquid is first measured in measuring cups and then dispensed into the container, is expecially well adapted to the filling of products that are of an expensive nature such as essential oils, etc., where an accuracy of quantity is more desirable than a uniform filling height in all of the containers filled.

The machinery manufacturers have developed various machines that will suit the requirements of almost every bottler. The machines range from the smallest or hand-operated units with a capacity of 10 to 20 bottles per minute, up to 30 to 50 a minute with a semi-automatic, and from 75 to 150 with full automatic machines.

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The Displaying of Packages

One of the principal functions of the package is to sell the contained merchandise. Whether attention is attracted to the package through color, shape, size, convenience or other accepted means of recognition which are attributable to the package itself is of importance in the merchandising plans of any commodity. But modern merchandising is not content to let such a plan rest on this one impetus to sales, for it has been definitely proved that other stimuli, which lead to further sales, can economically be utilized. Therefore the use of window, counter, and other types of displays has been accepted as an effective means of supplementing the sale of package goods. In effect, such displays dramatize the package, and when used correctly, form the final link in the chain between manufacturer and consumer.

It is obvious that if the type of display used is to function properly, the same care should be exercised in its selection as that which was applied to the construction and design of the package. A good display may aid sales of a poor, but an indifferent display detracts rather than helps to attract attention to a well-designed, package. For it must be remembered that first impressions are, in the majority of cases, the influencing factor in sales, and the display supplies the entering wedge of consumer acceptance.

Considering the subject of displays, a logical division of the various components should be as follows: window displays, counter or shelf displays and floor displays. The latter can be regarded as embracing such types as differ from those used on counters and shelves. Each has a definite place in the plan of encouraging sales and, to a considerable extent, supplements the other in performance. In each, account should be made of the functions, requirements and the materials used as generally accepted for the display of packages.

Window display of toilet preparations, showing effective use of drapings, display cards and grouping of packages. Courtesy of Einson-Freeman Co., Inc.

Regardless of what form of displays are used, they should be designed to perform the following: to attract attention, to bring the prospect into or across the store; to explain the use of the product; to indicate quality; to aid or actually make the sale; to show goods at an easy angle of vision; to hold goods properly or advantageously; to arouse desire to possess; to induce immediate action.

In window displays the arrangement of the decorative elements should be pleasing and the goods and materials so placed that they obtain the interest of the passer-by. Certain principles which should be observed are the following: neat appearance of fixtures and materials used; proper proportions in heights and elevations; correct lighting; unity of display;

Window and counter display. Garters are attached to each unit and photographs of movie stars are featured on the display cards. Courtesy of Einson-Freeman Co., Inc.

Display window featuring bottles and appropriate lithographed cut-out. Background and pedestal of corrugated crepe wadding. Courtesy of Einson-Freeman Co., Inc.

avoidance of crowding whether window is large or small; effective placement of show and price cards; timeliness; color harmony; display should tie up with other forms of advertising and should be changed at regular or advisable intervals.

Adequate display fixtures are indispensable in obtaining advantageous effects from window displays. Of these there are various forms made of glass, wood, metal and composition. The more usual types of display fixtures are tables, plateaux, fans, screens, stands, wax and metal figures and composition forms. Decorative materials used include composition board, various fabric coverings and drapes, artificial flowers and plants, metal foil, crepe paper and corrugated crepe wadding. The use and arrangement of these materials to meet general and specific conditions is in itself a subject of considerable length and cannot be adequately discussed within the limited space of this article. In the accompanying illustrations are shown typical examples of window displays which incorporate the use of packages in their assembly.

The great value of counter, shelf and floor displays lies in their ability to save the dealer's time and the elimination of effort on the part of the clerk in selling the product. Today the dealer can devote less and less time to any one product, and therefore it has become almost essential for the manufacturer to originate ways and means of doing more of this sales work for himself in the dealer's store. Therefore anything which makes selling easier for the dealer is a benefit to the manufacturer and the retailer. It is hardly necessary to state, then, that the ideal selling combination is a good package in a good display.

But what is meant by the term "good" as applied to displays? What yardstick can be used in judging a method of displaying packages? Why do some displays promote sales and others not? Is there any way of discovering before distribution of displays is begun whether or not they will aid in promoting sales?

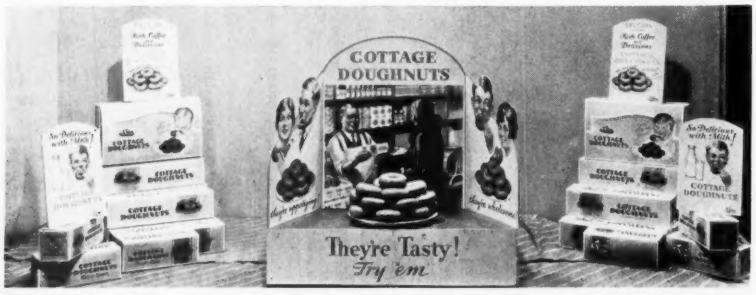
Not so many years ago it would have been impossible to have answered any of the above questions; but today, because of the exhaustive studies and intensive research that has been made in this field of merchandising, it has become possible to apply certain rules to the creation of displays with the assurance that the finished product would perform its predetermined function.

Specialists in this form of merchandising agree that display containers for packaged goods must possess the following attractions.

1. They must take up a minimum of counter space to assure general use.
2. They must have selling punch besides packing convenience.
3. They must be absolutely

(*Continued on page 94*)

Floor display stand which permits featuring of individual packages and sales arguments. Courtesy of Einson-Freeman Co., Inc.



Display cards and cut-out stand for window or counter use. Courtesy of Einson-Freeman Company, Inc.

Transportation of Packages

By J. D. MALCOLMSON

Robert Gair Company

Corrugated and Fibre Containers

A fibre shipping container is a tough, efficient and economical outer package built to withstand the wear and tear of freight, express and parcel post shipment. It is used for shipping all manner of commodities up to a weight limit of ninety pounds. There are two types of these boxes, both equally popular—the laminated walled "solid fibre" box and the cellular "double faced corrugated" box.

The fibre container is an evolution, partly of the ordinary paper carbon, and partly of the familiar corrugated straw sheet, used, among other things, as a wrapper for bottles and incandescent lamps. Corrugated paper itself has been in use for some fifty years as an interior packing and wrapping material. More recently, one face and then two were glued to this corrugated sheet to make a rigid board; but it was not until 1903 that experimental freight shipments were made in boxes built from this combined material. Litigation with the wooden box interests ensued and resulted in a victory for the new package. In 1906 the general use of fibre containers for freight shipments was authorized by the railroads, and this marked the real start of the industry.

Economically considered, the fibre box is an important factor in forest conservation, inasmuch as only about one-sixth of its raw material is new wood pulp, the balance being largely reworked waste paper. This waste paper, moreover, usually contains a fair proportion of old fibre boxes which have outlived their period of usefulness and have found their way back to the paper mill. These savings are in addition to the billions of feet of lumber for wooden boxes that are replaced.

The average fibre box weighs only from two to three pounds, which means a reduction of shipping weight anywhere from 10 to 50 per cent when compared with the same size wooden boxes. It is shipped flat when empty, and in this form occupies about one-tenth of the space it will contain when set up.

The fibre container affords a very satisfactory means for shipping fragile articles, as well as heavy commodities of relatively small size. Liquids in glass, for instance, are moved in these boxes with a minimum of breakage. The bottles are usually packed in cells formed by partitions of corrugated fibre board. Another method of packing which is in great demand is the "unit carton" system. Articles such as electric irons, lamp fixtures, etc., are placed in an individual carton, which also contains the necessary accessories. A certain number of these cartons, say two dozen, are then shipped in a container, so designed that the contents exactly fill the box. The advantages of this system are that breakage is practically eliminated, the goods are received by the retailer in an attractive condition for displaying on his shelves, and the customer receives the article with its accessory fittings in a convenient and expeditious manner. Many of the larger box makers maintain elaborate designing departments, which are devoted to the devising of new and better methods of packing. The service is usually offered to shippers without charge.

The advantages which are claimed for the use of fibre containers are as follows:

First Cost—Being largely made from waste products in large quantities, their first cost is relatively low as compared with other types.

Weight—Tare weights are relatively low, resulting in freight savings on shipments as well as on incoming supplies of boxes.

Convenience—The absence of nails and splinters prevents injury to hands or clothing in packing and invites freight handlers to lay aside their hooks. Its relatively small size, which is controlled by railroad requirements, makes for easy handling in shipment and storage. It is often used as a shelf package and as a "unit package" for delivery to the ultimate consumer without opening and re-packing.

Storage—Fibre containers are delivered flat and are stored in a minimum of space. Approximately ten of these flat cases can be stored in the space occupied by one of them when set up.

Concealed Theft is minimized, as the case, when properly sealed, must be practically destroyed to open it.

Sealing is very economical due to the development of automatic sealing machines which are described elsewhere in this volume.

Advertising—Being a paper product, these cases are susceptible to high grade printing in one or more colors and form a traveling billboard as long as they are in existence.

Sanitary Features—These cases are used new and seldom re-used. Paper linings are not necessary and dust and dirt find no access.

Accuracy—Shrinkage, warping and swelling are unknown.

Conservation—Timberlands are conserved as only a small proportion of the box consists of new wood pulp. The balance of the material includes discarded boxes re-worked into new paper.

Stacking—These boxes, due to the combination of

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light weight and rigid walls, can be stacked to the roof of most warehouses.

Nomenclature

Much time and correspondence is wasted through different ideas of terminology. This is in part due to the rapid growth of this industry which has not had time to evolve a standardized vocabulary.

The following list is by no means complete but it does contain most of the terms which are subject to misinterpretation:

Fibre Containers—The general term which includes both corrugated and solid fibre cases. The words "fibre" or "fibre boxes" are often used to designate solid fibre containers, but this is open to misconstruction.

Corrugated Fibre Containers, or usually simply "corrugated cases," generally indicates boxes made of single strength, double faced corrugated board.

Corrugated Board is a general term and may mean any of the grades named below.

Unlined Corrugated is the corrugated paper alone with no "liners" or "facings." It is usually made of 0.009 in. straw but sometimes is 0.009 in. chip and unless otherwise specified, is the usual or large corrugation, $^3/_{16}$ in. in height. It is used as wrapping material for lamp chimneys, etc., and has the disadvantage of stretching and thus losing the cushion value of the corrugations. It usually comes in rolls.

Single Faced Board has one liner which may be of straw, chip or jute and usually either 0.009 in., 0.012 in. or 0.016 in. thick. It is used for inner packing and wrapping and is usually sold in rolls 36 in. wide, 250 ft. long, weighing from 60 to 75 lbs.

Double Faced Board, or double lined corrugated, is made with two liners of straw, chip, jute or kraft and is described by the railroads as "single strength." It may be test or non-test board and cannot be rolled.

Double Strength Board is often spoken of as "double double" and "double walled," but the term "double strength" is preferable, as this is the designation used by the railroads. It is a combination of double face and single face, having three liners and two corrugations and is from $^3/_8$ in. to $^1/_2$ in. thick.

Straw Paper or "Strawboard," used for the corrugations, is 100 per cent wheat straw, although rye, oat and rice straw is occasionally used. Strawboard is sometimes imported from Europe, usually from Holland. It is generally made 0.009 in. thick for corrugating, although 0.012 in. or heavier is sometimes used for this purpose. Chestnut waste, sulfate, sulfite and pine wood fibreboard is also permitted by the railroads for corrugations, but the production of these materials is relatively small.

Chip, or Chip Board, is made from mixed waste papers and is usually 0.009 in., 0.012 in. or 0.016 in. thick. The 0.009 grade is sometimes spoken of as "rag." Corrugated board with chip liners is usually used for interior packing. Chip is also used for the inner plies of solid fibre.

News, or News Board, is made of newspapers and is sometimes used in place of chip, though more expensive. The other grades of box board do not enter, to any great extent, in the making of shipping containers.

Liners are the facings of single face, double face or double strength corrugated board. They may be 0.009 in., 0.012 in. or 0.016 in. chip or 0.016 in., 0.018 in., 0.023 in. or 0.030 in. jute or kraft. Solid fibre liners are usually 0.016 in. jute or kraft. "Liner" is also used to describe the interior packing sheet which lines the four sides of a case and which is usually made of double faced chip or straw corrugated board. This liner is usually made in one piece with three vertical creases but unjoined.

Jute is really a misnomer, as jute is no longer used in this industry. A "jute" liner is a mixture of new kraft or sulphate fibres and high grade mixed papers.

All-Kraft Liners—These contain no mixed papers but are usually made entirely of sulphate. They are a new development in the industry.

Solid Fibre is a laminated board built by gluing several plies of board together with silicate of soda and is often referred to as "fibre" or "fibreboard." (See *Fibre Containers.*) The two outer plies are made of jute or kraft. Solid fibre is usually made in 0.060 in., 0.080 in., and 0.100 in. thicknesses as called for in the Classification, but some 0.090 in. and 0.120 in. board is occasionally used for shipping containers.

Single-Lined Solid Fibre—This is not often used for shipping containers but is applicable where only a single bender is required and permitted.

Test and Non-Test Board—In this industry this usually applied to board that does or does not comply with the railroad requirements regarding bursting strength.

Express Stock—The correct name of this corrugated board is *jute and chip* which describes its construction. At one time this was acceptable for express shipments. The express rules are now essentially the same as the freight rules except that for most items of less than 35 lbs., jute and chip may still be used.

Mullen or Cady Test—These two instruments register the bursting strength of a board, presumably in terms of pounds per square inch. Actually the results are not exactly in these proportions and for this reason many people refer to the figures as Mullen "points" or "units." Both of these instruments are official as shown in Rule 41.

Webb Tester—This instrument overcomes many of the objections to the Mullen and Cady test by testing the liners of double face corrugated board separately, but it is not recognized as official by the railroads.

Rule 41 is that part of Official Classification No. 6 which itemizes the specifications for corrugated and

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fibre shipping containers when used for freight shipments.

Rule 18—This does the same for express shipments and is a part of the Official Express Classification.

The Bureau of Explosives, 30 Vesey Street, New York City, issues a handbook containing additional express and freight container specifications for dangerous articles.

Food Administration Specifications—These are the same as the so-called *National Canners Association Specification* and specify higher test corrugated and solid fibre cases for canned goods than are required by the railroads. They are therefore regarded as being unofficial.

Certificate of Box Maker—This is sometimes known as the "Inprint."

The following list is not complete but covers the most important styles of boxes:

Regular Slotted Carton (RSC)—Most containers, especially for freight shipments are made in this style because of the economy of using a straight cut blank. All flaps are the same length and the inner flaps do not meet unless the length and width are the same.

Special Slotted Carton—All Flaps Meet— Also called "Center Special Slotted Carton." This is more expensive as inner and outer flaps are of different lengths, necessitating an extra manufacturing operation with a loss of stock.

Full Overlap Slotted Carton—Also known as "Full Flap S. C." The length of the outer flaps is the same as the width of the box. The inner flaps may meet, gap or overlap. This style is usually desirable on a long narrow box and gives added strength to any shaped container.

One-Piece Folder—This has flaps at top only and is used to pack flat material such as advertising cut-outs for shipment by parcel post or express.

There are a great many other styles of corrugated and solid fibre shipping containers which are illustrated and described in a free handbook issued by the Paperboard Industries Association, 608 S. Dearborn St., Chicago, Illinois.

Bliss Box—This is a patented three-piece shipping container (two ends and a body sheet) that can be made of solid fibre, corrugated or a combination of both. Several styles are available, the No. 2 having flanges on the end panels that are stitched to the body sheet, the No. 4 having these flanges as part of the body sheet, while the No. 4–2 has flanges on both ends and body sheet, giving a double reinforcement. The No. 4 style (when the top flaps are glued) is also known as a Van Camp box.

Cracker Caddy—This is a special container. Usually about 10 in. x 10 in. x 11 in., made of a moisture- and greaseproof board combination. It is occasionally referred to as "can" or a "qu."

Silicate of Soda—This is an adhesive sometimes used for sealing containers and always used in the manufacture of corrugated and solid fibre board. Another name is *water glass* and it is generally referred to as simply "silicate."

Point—In this industry a "point" is one thousandth of an inch. 0.060 in. board is spoken of as "sixty point" board.

Height—Depth—These synonymous words indicate the distance between the openings of a box, i.e., from top to bottom. "Height" is preferable as in some industries "depth" means from front to rear. The height of a slotted carton is always the last dimension.

Girth is used in the parcel post specifications and means the distance around the parcel at its thickest part.

Length in these P. O. specifications is the greatest distance in a straight line between two ends.

Nests, or Partitions, are slotted half way so that they interlock. A *Divider* is simply a vertical pad with no slots.

Star Cut Pad—This corrugated pad has radiating die cuts and is used to separate large glass objects, such as bowls and illuminating glassware. It is also known by such descriptive and imaginative terms as "rat trap pad" and "pie cut pad."

Die Cut Work is made on a special press and the initial cost of the die and extra make-ready must be allowed for. The ordinary fibre box equipment works in straight lines, at right angles, so that other unusual work must be made on a separate cutting and creasing press.

Crease and Score are used interchangeably but "crease" is preferable as "score" may mean a knife cut, as it does in the set-up box industry. Such a cut score is not used in the fibre container industry.

Joint and Seam—The railroads define "joint" as the result of the operation done by the box maker in taping or stitching the fourth corner of the box; and "seam" as the juncture that is closed by tape in the sealing process.

Bales and Bundles—This refers to Section 4 (*b*) of Rule 41 and means that items accepted under this category may be shipped in corrugated or solid fibre containers *without* restrictions as to weight or dimensions.

Printing Plates—Solid fibre is printed from brass plates or electrotypes. Corrugated board is printed from rubber plates which are cast from type or from a wood cut.

"A" Flute Corrugation is approximately $^{3}/_{16}$ in. high, 36 to the foot; *"B" Flute Corrguation* is approximately $^{1}/_{8}$ in. high, 50 to the foot.

Rules and Regulations Governing the Use of Fibre Containers in Transportation

It is essential that shippers as well as box makers be familiar with the regulations. They are too voluminous to remember but one should at least know where to secure the authoritative data. Below is given a summary of the various regulations.

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The more or less voluminous regulations covering shipments in corrugated and solid fibre boxes can be grouped as follows.

1—Freight
2—Express
3—Parcel Post
4—Dangerous Articles
5—Export
6—Army and Navy

Many of the details in these rules apply only to the way in which the box must be made, and are not of particular interest to the shipper. Buried in the mass of material, however, are a lot of little jokers that are highly important to him, but it sometimes takes a minute study to uncover them.

Freight—The "Bible" under this heading is the Consolidated Freight Classification No. 6, issued May 1, 1930, effective June 15, 1930—a formidable volume of 550 closely printed pages. This is issued in two sizes—one about the dimensions of a telephone directory and the "photo-reduction edition" about 5 in. x 7 in. x 1 in. Either size may be obtained for a nominal sum by writing to the Official Classification Committee, 143 Liberty St., New York City, the Southern Classification Committee in Atlanta or the Western Classification Committee in Chicago. The subscription includes the various supplements which are issued from time to time—also in photo-reduced form if desired. One should look over each supplement and make the necessary corrections in the large volume. A point to bear in mind is that most of the supplements consist of "re-issues" and where this word occurs it means that the change has already appeared in a previous supplement, so you can skip these lines if you have kept things up-to-date in the past.

The well-known "Rule 41" of the Classification gives all the rules for manufacturing and sealing corrugated and solid fibre containers and the book also lists all commodities, telling how each may be packed. Thus, "In Boxes" means corrugated and solid fibre as well as wooden. "Bales" or "bundles" means oversize boxes with no weight nor dimension limits, provided the case is roped or steel strapped. "Packages" is an undefined term occasionally encountered and is similar to "bales" and "bundles" except that the use of straps is not compulsory; and one item permits the use of 0.060 fibre "cartons" without dimension or weight limit. Some shippers like to strap several small fibre containers together to make a single unit. There is no rule against this but each individual box must conform to the requirements of Rule 41. "Wrapped in Fibreboard" is another definition applied chiefly to special forms of packing for furniture.

The commodity list is very complete but some ingenuity is often required to locate a particular item—this in spite of a good cross index. For instance, cylinder blocks, baby carriage bodies and wheel-barrows all come under "Vehicle Parts." Wearing apparel comes under Clothing, but if the goods have not yet been manufactured into wearing apparel, they are listed as Dry Goods, which also includes cotton piece goods, blankets, etc. The committee members, however, are very good about helping out if one gives them a ring or drops them a line.

Shippers are constantly applying for changes in the rules. Such applications are listed from time to time in a published docket and hearings are later held at the three cities mentioned, to pass on these applications. Very conclusive evidence must usually be presented to effect a change, and "shipping history" plays a large part in this evidence.

Express—These regulations are governed by the Official Express Classification No. 31 issued in February, 1930. This is a small 60-page pamphlet with seven supplements to date. Only two supplements are in effect at any one time. Rule 18 describes fibre containers and is modeled very closely after the freight Rule 41, the principal difference being that the regular dimension limit is raised from 70 in. to 90 in. and the specifications for packages under 35 lbs. are much less severe than for freight.

Parcel Post—The post office rules are not as definite as those for express and freight. Form No. 3841 recommends the use of corrugated boxes for a number of listed commodities but specifications other than "securely wrapped" are not given. The usual parcel post weight and dimension limits apply. In case of doubt it is always best to submit the complete package to your local postmaster for approval.

Dangerous Articles—These come under the jurisdiction of the Bureau of Explosives, 30 Vesey St., New York City, and include such items as inflammable liquids, "strike anywhere" matches, fireworks, etc. The regulations are covered by a 380-page "Pamphlet No. 9" dated September, 1930, and by numerous later supplements. An important thing to remember is that the freight and express classifications list and rate dangerous articles, without any intimation that they require special packing. In case of doubt, it is therefore wise to study the Bureau of Explosives rules first, as the method of packing such articles is considerably more expensive than indicated by the ordinary freight and express rules.

In this classification, an "inflammable liquid" is one with a flash point at or below 80 deg. F. An immense amount of correspondence back and forth would be avoided if shippers of doubtful liquids would always mention the flash point of their product when making inquiries for shipping containers.

Forbidden Articles—A number of articles are forbidden for all of these transportation methods. These include certain explosives, chemicals and products susceptible to spontaneous combustion.

Export—There are no uniform rules for fibre containers for overseas shipments. Each steamship line makes its own rules and the stringency of these depends somewhat on the intensity of competition at

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the time the rules are made. The Paperboard Industries Association has done much valuable work in keeping these regulations within reasonable bounds and hopes eventually to help standardize them.

Army and Navy—During the War, the U. S. Army adopted certain specifications for fibre containers to be used in making shipments, particularly of canned goods, to training camps. This was done under the auspices of the Food Administration. At present the Navy has in effect Bulletin No. 65 C 12, effective February 1, 1926, and revised September 1, 1926. This is modeled after Rule 41 and a copy can be secured from the Supply Officer of any of the navy yards.

Conclusion—This set of regulations makes a formidable array but a great deal has already been accomplished in the direction of uniformity. It is to be hoped that this standardization will be kept in mind by the powers that be, when they make future changes or additions.

Patented Types of Fibre Containers

The passing of the years has seen an almost endless number of unusual boxes, patented, advertised and finally forgotten. Most of these are either impracticable or too expensive for the purpose intended. Those in the limelight at the present time are:

The Reinforced Score Box—A corrugated container with a strip of tape glued over the score-line, either on the inner liner or inside the board. Three different companies have patents on variations of this idea.

The Reinforced Tape Joint, in which the ends of the tape on the manufacturer's joint is split and tucked under at each end.

Burlap-Covered Box—This is a corrugated box with an outer covering of burlap cemented on with asphalt. This box, because of its strength and moisture-proof qualities, is suitable for export use.

Recessed End Box—The ends of this solid fibre box, being recessed, are strengthened by the resulting stitched rim.

Bliss Box

This type of fibre container, designed by the H. R. Bliss Company of Niagara Falls, N. Y., consists of a three-piece box made of solid fibre or corrugated board. The blanks are joined by means of flanges stitched in place, which reinforces the corners and all vertical seams. It is claimed that the corners and vital seams are the vital parts of the fibre box and that when reinforced by stitched flanges, the resulting box is much better fitted to withstand the shocks and strains of handling and of transit. The box is also more rigid and can be stacked higher without bulging.

In a three-piece box the grain of the board or the direction of the corrugations can be run vertically or horizontally, as desired, depending upon the requirements of the package. It is claimed that this also makes possible a stronger and more rigid box and one less easily torn or damaged in use.

Bliss boxes are made with different types of top flap construction, depending upon the conditions of use, and are closed by wire stitching, adhesive sealing, or a combination of these methods.

The designers state that by the use of three-piece construction, the amount of board used in making up a box is reduced by from 10 to 20 per cent, thus lessening the cost of the package as well as the freight charges. This saving of board, however, does not weaken the box as the flanges and top flaps are made just the right width for maximum strength, only excessive overlapping being eliminated.

It is stated by the manufacturers that Bliss containers are largely used for shipping a wide variety of package and bulk goods, meats, etc., and are well suited to meet export requirements. The special corner strength makes possible their use in substitution for veneer and wire-bound boxes in many industries. Various styles are available to meet the particular specifications of the shipper.

Special machinery has been designed to handle the setting-up and sealing operations on these containers, both manual and automatic types being supplied by the H. R. Bliss Company, Inc.

Top Sealing of Fibre Containers

The early methods for sealing the tops of fibre boxes were far from satisfactory and during the period when such containers were first being placed upon the market greatly retarded the development of their use. Great progress has been made in the last decade in the improvement of sealing methods and, at the present time, practically no trouble is encountered in this connection. For example, in a recent series of drum tests made on canned goods boxes, less than one per cent of the 1300 boxes tested failed through opening of the flaps.

Four principal methods of closure of fibre and corrugated boxes are now in general use, namely:

A. Sealing with adhesives such as glue or silicate of soda.
B. Sealing by means of wire stitching or rivets.
C. Sealing by the application of gummed tape.
D. Holding the flaps in place with steel strappnig, rope or twine.

Each of these types of closure has its advantages for certain classes of work and is briefly described below. In many instances combinations of methods are employed such as gluing and taping to give air tight closures or gluing and strapping in order to make a package tight and, at the same time, enable it to be shipped under the classification of a "bundle."

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Sealing with Adhesives

This is one of the most widely employed methods of sealing containers, especially when made of corrugated and consists in the application or a solution of vegetable glue or silicate of soda to the flaps which are then held together by pressure until the adhesive has taken an initial set. This requires from 45 to 50 seconds on corrugated board with jute liners, 50 to 55 seconds on solid fibre with jute liners and 50 seconds or more when kraft or very dense jute liners are used.

In many plants, sealing is done by hand, usually in two stages. Glue or silicate is applied with a brush to the inner surface of the outer bottom flaps of regular slotted containers and the flaps held together either in a simple hand sealer or by placing the box on the floor and applying weights inside. After the adhesive has set and the goods inserted, the top flaps are similarly glued and the box turned upside down so that the weight of the contents holds the flaps together. This is a relatively crude and inefficient method but has the advantage of simplicity and lack of any investment in machinery in plants where relatively few containers are required.

As the use of boxes increases in a plant, this method becomes burdensome because of the amount of labor required and also because of the space needed to store the boxes while being sealed. The first step in the line of automatic methods is to use a power-driven compression unit or sealer. This consists of two endless belts, top and bottom, either or both of which are power driven, the belts passing over rollers which, on the top unit, are backed up by coiled springs to give compression. The top unit can be quickly adjusted up or down to handle boxes of varying height. Guides are usually provided on each side of the entrance end to hold the boxes tightly as they enter the compression unit and thus prevent spreading of the flaps. The operation is intermittent, means being provided so that the belts move only when a new box is being inserted, thus keeping the box under compression for the greatest possible time. These compression units may be had in various sizes depending upon the length of the container and the hourly requirements.

A glue pot is fastened at the entrance end of the machine and a work table provided to support the box. The operator brushes the glue on the inside of the outer top flaps, folds in position, up-ends the box and glues the bottom flaps and then pushes the same into the machine, which moves it automatically thereafter. In this way both top and bottom flaps are sealed simultaneously. In some plants it is the custom to glue one end at a time, repeating the operation for the opposite end either in the same sealer or in a second sealer placed at the end of the first. When glassware is being handled, it is usual for the container to have the bottom flaps wire stitched at the glass plant, the empty jars inserted and the top flaps either spot sealed or held together by criss-cross tucking. At the packing plant where used, the glass jars after filling are replaced in the box and the top flaps sealed with adhesives as above. Care must be taken that too much adhesive is not applied as this lengthens the time of sealing and also causes staining of labels on the goods through dripping.

For plants where long runs of one size of container are to be sealed, the modern full automatic gluer and sealer is employed. The bottom flaps of the box are folded into place, contents are inserted and the filled case goes to the sealer on a gravity conveyor line. The machine automatically takes the unsealed cases and feeds them one at a time into the gluing unit where the outer flaps, top and bottom, are folded out, the adhesive applied evenly by means of a roller, flaps folded back into place and the box fed into a compression unit such as described above. Means are provided for holding the contents in place while the adhesive is being applied, and also for applying the same only where the inner and outer flaps would be in contact, thus economizing on adhesive and preventing damage to the contents of the box.

These machines are fully automatic and require no attention other than to keep the glue pots full and to clean the pots and rollers regularly. The capacity of such a machine is great, running up to 1500 cases per hour for canned goods, under favorable conditions or even higher on certain light operations. Adjustments are provided so that the machines can be quickly changed to handle different sizes of containers. In many plants such as those handling glassware and in some instances, canned goods, the bottoms of the boxes are preferably stitched in which case a top automatic gluer only is employed.

Wire Stitching

This method of sealing boxes is of steadily increasing importance because of the greater security obtained, each staple giving a positive closure of the flaps. No setting time is required as with adhesive sealing and relatively cheap labor can be employed. Furthermore, if warehouse and repacking is required, the stables can be removed with a screw drive or a stitch removing tool without appreciable damage to the case whereas a box sealed with adhesives cannot be opened without serious tearing of the flaps. There was a time when it was thought that only solid fibre boxes could be wire stitched, but improvements in machines and methods have resulted in a widespread use of stitching of both tops and bottoms of boxes made of corrugated board.

The "manufacturer's seam" or overlapped flap joint is always wire stitched on solid fibre containers and there is an increasing tendency to use the same methods on corrugated boxes instead of a cloth taped joint heretofore largely employed. Whether taped or stitched the regular slotted container always comes to the user in flat condition and is stored in this form.

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When required for use, the box is first squared up and bottom stitched, the contents inserted and the top flaps then sealed by wire stitching over a blade anvil.

Where wire stitching is to be employed, the outer flaps on the bottom may be made to meet or overlapped 1 in. in the center, the latter construction being preferable in many cases for the protection of the goods and required if the inner flaps are more than 6 in. apart. Canned goods cases are seldom overlapped whereas shoe cases are almost always so constructed. If the contents of the case are heavy, overlaps up to 2 in. are often used. With overlapped cases a single row of stitches along the lap and also along each end is required, staples to be not over $2^1/_2$ in. apart. When the outer flaps meet only, staples are placed on both sides of the joint as well as along the two ends.

A bottom stitcher consists of a cast iron frame supporting a stitching head with its driving mechanism in combination with a post about 40 in. high, having a clincher on its top which acts as the anvil for clinching the staple. Such a stitcher will occupy about five square feet of floor space and weigh from 500 to 600 pounds. The machine is motor driven either through a pinion and gear or by means of a belt, the motor being not over $^1/_4$ hp. and usually connected to the nearest light socket. The machine is controlled by a foot pedal and will drive from 200 to 300 stitches per minute if run continuously. The stitching wire is fed from a spool attached to the stitcher-head and in the operation of the machine is automatically fed in, cut to proper length, bent over a mandrel to form the legs, driven through the flaps of the box and the legs tightly clinched on the underside. Quick adjustments are provided for handling various thicknesses of flaps by controlling the length of the wire and the space between the clinching anvil and the stitcher head. Small variations in thickness are automatically compensated for.

The post of the bottom stitcher is hinged at the bottom and, by means of a special foot pedal, is tilted forward for the insertion of the box to be stitched, being drawn back to a vertical position by means of a spring. The operator then depresses the stitcher pedal and drives the staples where required, moving the box on top of the post between stitches and stopping the operation only at the ends of the seams. A competent and experienced operator can easily bottom stitch from 200 to 400 cases per hour, depending upon the size and the convenience of the handling arrangements. On small containers like cracker boxes, two girls are often used, one folding and the other stitching, in which case speeds of 20 to 30 boxes per minute are frequently attained.

The container after being bottom stitched will hold its shape and can be used to hold the goods until it is convenient to top seal the package. It may also be used for transferring goods from one department to another or even for shipments to warehouses.

When containers are to be top sealed by wire stitching, it is usual practice to have the outer flaps overlapped from 1 in. to 2 in., although it is allowable to stitch a case without overlap provided the inner flaps are not over 6 in. apart. The machine used is a top stitcher which is built like the above described bottom stitcher except that it has the clincher supported by a "blade anvil" or thin sword-like, steel arm horizontally attached to the machine. The box is supported on a flat work table containing many steel balls so that it may be rigidly supported and, at the same time, easily moved in any direction; this work-table being counterbalanced by means of springs or weights and instantly adjustable up or down to accommodate containers of varying heights. Top stitchers are made in several different sizes for handling different lengths of boxes, the size referring to the distance between the vertical support of the machine and the clinching point. Machines are also available in which the work table is power driven and by means of an accessory pedal can be moved up or down without physical effort on the part of the operator.

Combination bottom and top stitchers are also available for use in small plants or in large plants where cases are to be assembled and sealed in many departments. When used for bottom stitching, the blade anvil is dropped down against the column of the machine and the work table swung to one side out of the way; while for top stitching the post is removed from its support and placed in a convenient receptacle at the side of the column.

When sealing a case with overlapping top flaps, the box is placed on the work table and raised to the proper point so that the blade anvil will just enter between the flaps. The center overlap is first completely stitched to hold the box in shape, starting with the end furthest from the operator. The blade is then placed under one end of the inner flap nearest the operator and the box stitched along that end, leaving an open space of about 4 in. either in the middle or at one end. Double stitches are often driven on each side of the opening to prevent the stitches tearing out in the next operation. The box is then reversed, the blade inserted in the 4 in. opening and pushed through to the opposite end of the box and under the flaps which are then completely stitched, the anvil being afterward withdrawn through the opening. With this method all flaps are completely closed with stitches spaced not over $2^1/_2$ in. apart except at one point, the opening here being allowable under the Classification rulings. When cases without over lap are to be top stitched, the blade anvil is inserted in the gap between the inner flaps and under one outer flap, one-half of the box being stitched and the operation then reversed, no end opening being required. This method is not as satisfactory as the first since the contents are not completely protected at the point of gap between inner flaps and is not permitted when the latter are more than 6 in. apart. The speed of top stitching depends upon the size of the container, the skill of

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the operator and the convenience of handling the boxes to and from the machine. In general, it may be said that from 180 to 250 boxes of average size and weight can be handled per hour.

While it is usual practice to have the large flaps outside for sealing, in some instances the inner flaps are both brought outside or one outside and the other inside. Can cases are often stitched with the end flaps outside as the top creases are thus brought higher than the chime of the can which tends to cut through the board at this point of relative weakness. Another sealing method consists of placing a reverse crease on the inner flaps about 2 in. from the end and bending the same back under the outer flaps. The overlap is stitched first and the "bellows flap" then stitched from each end. This method makes possible the complete sealing of each end of the box as no opening has to be provided for the withdrawal of the blade. Another method involves the use of a portable type of blade anvil stitcher suspended beside the conveyor line from an overhead trolley by means of a spring. With this machine, boxes of any weight or length can be sealed with one small machine and without the necessity of lifting the box to the work table of a stationary stitcher.

The wire used for stitching is usually copperized or galvanized stay wire, 0.103 in. wide and from 0.017 in. to 0.020 in. in thickness. The number of stitches of average length per pound of wire runs from 1600 to 2000 and the average cost from $4^1/_2$ cents to $5^1/_2$ cents per thousand staples driven. Another much used type of wire is 0.060 in. wide and from 0.020 in. to 0.024 in. thick, being somewhat less expensive than the regular ribbon wire but having nearly the same holding power. Stitching wire is now usually purchased in 5-lb. to 10-lb. spoolless coils, an aluminum spool holder being used in setting it up on the stitching machine. The length of the crown of the staple is usually $^7/_{16}$ in. or $^3/_8$ in., although for some purposes longer or shorter crowns are employed.

In addition to sealing one-piece boxes, wire stitching is much used for making up telescope boxes (including suit boxes), sealing the bottoms and making up the tops of the popular cracker caddy, and also for assembling and sealing three-piece containers of the Bliss or recessed end style. Three-piece containers are often made with the outer flaps overlapped at the side and full automatic machinery is available for sealing such containers without the use of any hand labor whatsoever, the operation thus being comparable to that of full automatic gluing.

Metal Strapping

The application of metal strapping to fibre containers is a relatively new development and was started by a short clause written into the freight Classification within the past few years. The principal uses of metal strapping as applied to fibre containers are as follows:

1. Bundles and bales as defined by the freight classification.
2. Packages composed of several light weight outer containers strapped together.
3. Packages with heavy weight contents where the bursting thrust is excessive.
4. Packages to be safeguarded against pilferage.
5. Odd shaped containers.
6. Export boxes.

There are three principal steel strapping systems applicable to fibre containers. The straps are tightened and sealed by various methods. Omitting the technicalities of these methods as outside the province of this article, it will suffice to say that the ends of the strap are usually clamped together with some sort of separate metal seal. This seal can often be lithographed with the shipper's name or embossed with his package number, thus affording a positive identification and seal. In one make the straps when crossed can be sealed at the intersection in an interlocking combination which prevents side slipping. Some makes have separate tools for applying tension, crimping the seal and cutting the strap. At least one style does all these operations with a single tool. Perhaps the latest development is the use of spot welding for joining the ends of straps, in place of crimping with a seal.

As regards the strap itself, many experiments have shown $^3/_8$ in.-0.015 metal is best for fibre containers. Straps less than $^3/_8$ in. in width have a tendency to cut through the board and the gain in this matter from using greater widths than $^3/_8$ in. is not commensurate with the increased cost. The straps naturally cannot be applied as tightly as in the case of wooden containers, but should be tightened just sufficiently to bite into the edges, so that they will not slip sideways. This, by the way, is the big disadvantage of cord.

When the contents are of a hard, solid nature, the strap should, of course, be drawn tighter than in the case of loosely fitting or fragile contents, as this serves to tie the contents together in such a way that they will resist a surprising amount of rough handling, even after the container itself has started to break. Where the contents are of a fragile or yielding nature, it is often worth while to slip buffers of corrugated or fibre board under the strap at the edges.

Fibre containers are usually sealed with adhesive or tape, or both, before applying strapping. Strapping alone can be used, however, especially when the outer flaps have plenty of overlap and the contents are solid and firm, such as canned goods. The use of wax seals on valuable contents, such as silverware, can also be dispensed with when straps are used.

The regular slotted carton style is often strapped but it is usually preferable to have the outside flaps made with a 1-in. overlap. This is particularly true if no adhesive is used. Long boxes opening at the ends (such as for automobile bumpers) should have

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a full overlap. Another popular style is the "full telescope," as the depth can be varied while the straps will still keep the contents from shifting. The three-piece box is also well adapted to strapping. The body of this box consists of an open-end tube and the ends are formed by telescope covers extending two or three inches over the sides. If necessary the depth can be varied by cutting down the body. Two crossed metal straps provide all the sealing needed.

Often several relatively small corrugated or fibre containers are strapped together to make an easily handled shipping unit, to give added protection to fragile contents or to reduce transportation costs. For instance, one of the branches of the General Electric Company receives solid carloads of lamps from the factory and re-ships these in smaller lots. Many of these corrugated boxes weigh from three to six pounds only each.

The minimum weight for express shipments is ten pounds. By strapping several of these boxes together, expressage is paid only on the actual weight shipped. Several sizes of boxes are often strapped together and "lot shipments" arrive at destination intact with no lost sheep "to follow." Because of the light weight, no wooden ends nor fibre buffers are necessary. Two straps, crossed, are used.

Dead weight articles, such as bolts and nuts, are always expensive to pack. When dropped, the box often breaks with explosive force. Metal strapping is a valuable reinforcement in such instances.

Concealed losses due to pilfering run into large sums annually, although marked reductions in these losses have been made during the past few years and much of this reduction is due to the use of sealed metal strapping.

Many objects are difficult to pack because of their odd shape and when packed it is sometimes difficult to seal the container and to deliver it to destination in good condition. In such cases the proper use of steel strapping often solves the problem.

Automobile bumpers are usually shipped in long, narrow, solid fibre containers either end-opening or "five panel wrap" style. Both of these are difficult to seal with the usual methods and for this reason metal strapping is nearly always used to close these packages. When drawn up tight, the straps keep the heavy bumpers from punching through the ends of the package.

The export field has so far been little touched by corrugated and fibre boxes, but it is undoubtedly destined to play a big part in the future of the industry. One of the chief things that has retarded this development has been the attitude held by the steamship lines that the domestic type of these packages is not sufficiently rugged to withstand overseas shipment. Also the steamship companies lack the uniform classification standards that have been developed by the railroads.

With the increase of competition among ocean carriers, however, definite rules will soon have to be laid down regarding such shipments. Doubtless, these rules will include the use of steel strapping.

Gummed Tape

If there is one subject on which the public, from box manufacturers and tape mills to shipping clerks and packers, need instruction, it is on how to get proper results from sealing tape. Many mistaken notions are prevalent. The result is that many shippers get better results from sealing tape than from any other form of closure, while there are other concerns whose taped packages are not effective.

To make taped fibre shipping cases safe, it is of utmost importance to make the gummed tape stick tightly. To do that the tape must be *correctly moistened*. Unfortunately, this important factor of tape moistening is often neglected in shipping rooms and also by those higher up, who do not realize its value in preventing damage to or loss of goods in transit.

When a strip of sealing tape has been applied to a carton or package, it should stick so tightly that it becomes practically a part of the container itself. Moreover, the tape must stick over its entire surface, not just in spots here and there; as that would seriously weaken the package.

To accomplish this is easier said than done. Devising a machine which will invariably deliver strips of tape moistened just right, and over the entire surface of the tape, has proved to be far more difficult than was at first expected.

Let us consider a moment what a good tape moistening machine must do. During rush hours in shipping rooms, packages and cases are sealed at top speed. Each lineal inch of tape touches the moistening element about one-fortieth of a second of time The "first time over" must do the job correctly or not at all. The tape is slapped on the carbon, rubbed with one or two quick motions—and in that brief instant it must grip tightly enough to hold the container, if necessary, during a trip across the continent. The box will not stand quietly on a shelf for several weeks but will get rough handling. The crushing and scraping in transit frequently pulls nails out of wooden shipping cases, yet tape must not work loose. It must *stay* stuck.

Some shippers do not realize that tape can stick for a few hours and look perfectly secure, and then suddenly give way. This trouble is usually the result of moistening the tape only in spots or it may be caused by overwetting of the tape or not moistening it enough.

The safest plan is to use only thoroughly reliable tape dispensers. The best machines are those which eliminate the human factor from moistening entirely, making the operation of the moistening unit of the machine entirely automatic.

No matter what type of moistening device a shipper may choose, the main thing to remember is the great

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importance of the moistening operation in making a safe shipping container out of corrugated box or the paper wrapper, as the case may be. The value of the merchandise and ordinary corrugated box runs from $1 to $20. Moistening the tape can never cost more than a tenth of a cent, but that fraction of a cent can make all the difference between losing the $20 merchandise or having it arrive safely and in good condition when it reaches its final destination.

The glue of various brands of gummed tape varies, expecially as regards solubility. A little study will show the proper amount of moistening for any one make. Too much water may remove a very soluble glue and lead to blisters, while not enough water may fail to soften a harder glue. Some tapes have such hard glue that complete immersion works best. Only first class moisteners should be used. Heavy kraft paper tape, while strong, is stiff and difficult to adhere properly and thoroughly. A very thin tape is more foolproof but weaker. For these reasons gummed cambric makes a wonderful seal besides being very resistant to tearing and friction. However, it can be easily peeled off by a thief and a fresh piece replaced, so for this reason the railroads have recently forbidden its use in sealing. Well-adhered kraft cannot be removed without tearing.

Springy flaps will cause tape to slip a little before the glue has set, resulting in looseness and wrinkled tape. This can be overcome by first folding the flaps inward or by holding them down hard until the glue has set or can be done mechanically by slipping the freshly sealed box under a home-made adjustable wedge-shaped board or frame which will hold the flaps of one box down until it is pushed on by the next box.

Many shippers run the tape 6 in. down the ends of the box or even all around. The Classification calls for 2½ in., and if properly applied this is enough. In one instance a shipping room placed an average of 6 in. of 3-in. tape down the ends of the box and turned out 200 boxes a day. Reducing this to 2½ in. made a saving of $435 a year. In most cases, where 2-in. tape is indicated under the rules, this width, properly applied, is ample.

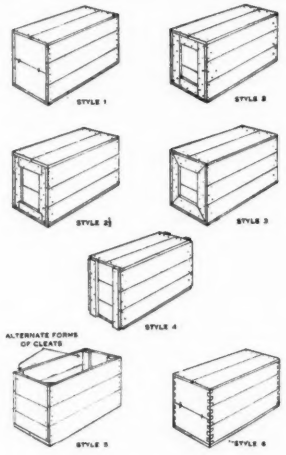
Many shippers use tape and adhesive together when the latter is sufficient to meet railroad requirements. From a carrying standpoint adhesive alone is ample but the extra tape may be worth while as an identifying seal or as insurance against inefficient labor. One firm made a saving of $2230 a year by omitting this extra tape which was being used through ignorance of the Classification requirements.

An occasional visit to the shipping room by one experienced in such matters is well worth while, as he can often point out economies and can compare your procedure with the Classification requirements which are often quite complicated. This is especially true in the case of relatively small companies or those who have only recently adopted the fibre container.

Wooden Boxes

There are seven forms of nailed wooden boxes so universally used that they may be called the standard styles of nailed boxes. These boxes can be adapted to a wide range of uses, and it is the experience of the Forest Products Laboratory that in meeting the majority of packing problems they are the most efficient of the nailed boxes. The advantages and disadvantages of each style, as revealed in laboratory tests and observations of boxes in commercial service, are given below.

In Style 1, the grain of the ends and sides runs approximately parallel to the top and bottom surfaces. One of the common failures in this type of box is splitting of the ends and sides, or failure of the joints in these parts, since the only resistance to such failure lies in the strength of the joints, if present, or in the strength of the wood in tension across the grain, which is not large and is extremely variable in any species of wood. The smaller holding power of nails driven into end grain as compared with side grain is another source of weakness.



To improve on Style 1 ends, and guard against the liability of complete failure from splitting of ends and sides, rectangular and sometimes triangular corner cleats nailed or stapled to the inside of the end (Style 5) are added when the character of the contests permits. This construction does not increase the displacement of the box and is, therefore, not objectionable in that respect. If these cleats can be made large enough, the sides may also be nailed to them, which, of course, increases the strength of the nailing at this point. These inside cleats should be shorter than the inside depth of the box, so that if the sides and ends shrink, the cleats will not cause an opening of the joints. In all boxes with cleated ends, the nails or staples holding the cleats to the ends should be long enough to permit a good clinch, and should be spaced approximately the same as the nails in the adjacent edges of the wooden box.

The most common method of preventing box ends from splitting and of supplementing the holding

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power of nails driven into the end grain is the addition of two outside cleats on each end as shown in Style 4. These cleats should be of the same thickness as the end, so that when setting up the box the same size of nail may be used in them. The nails should be staggered in the ends and cleats; this permits a closer spacing of the nails and results in a stronger joint than is obtained by driving the nails in a single row. The holding power of the nails is supplemented most effectively by the use of denser woods in ends and cleats.

The cleats in Style 4 boxes should be long enough to come nearly flus with the outer surfaces of the top and bottom. They will thus aid in keeping the top and bottom in place and will also take some of the thrust which comes on the nails in the top and bottom when the box is dropped on a corner. If the cleats are made to come exactly flush with the outer surfaces of the top and bottom, and shrinkage occurs later, it may cause the ends of the cleats to project beyond the top and bottom, and they may be pulled loose if the box is handled so that they catch on some object. The amount that the cleats should be cut short to allow for shrinkage depends on the moisture content of the lumber at the time the box is constructed and the storage conditions afterward. Usually an allowance of from $1/8$ to $3/16$ in. at each end will be sufficient.

The addition of the two horizontal cleats in Styles 2, $2\frac{1}{2}$ and 3 permits a reduction in the thickness of the end boards from the thickness of the cleats to that of the sides, top and bottom, in which case all the nails should be driven into the cleats. Or the cleats and end boards may be the same thickness and the nails staggered in two rows. The usual failures in these styles of boxes are pulling of the nails from ends and cleats, shearing out of the nails to the ends of the sides, top and bottom, and splitting of the end boards along the inner edges of the horizontal cleats, which allows a cleat with part of the end board to pull away with the top or bottom. The resistance to failure by splitting of the end is due to the strength of the end board in tension across the grain, supplemented by the action of the vertical cleats. In nailing or stapling the vertical cleats to the ends in Styles 2 and $2\frac{1}{2}$, it is possible to get more nails near the top and bottom edges of the box than in the mitered cleats of Style 3. This more effectively prevents the box end from splitting along the horizontal cleats.

Style $2\frac{1}{2}$ has the advantage that when the bottom and top are being nailed to the cleats, the notches or steps in the vertical cleats will take the thrust that otherwise would come on the nails holding the horizontal cleats. This thrust is sometimes very severe, especially when several nails are driven at the same time into a cleat made of dense wood.

In manufacturing boxes with square ends, Style 3 has the advantage that all four cleats are the same length, hence interchangeable. When a very symmetrical end is desired, rather than the strongest end, the mitered cleats are always to be preferred.

The box shown in Style 6 has sides and ends joined together by a series of tenons, called "locks," which interlock and are held together by gluing. The top and bottom are usually fastened by nailing. The lock corner, if properly glued, gives a more rigid box than nailed corners, there being no appreciable distortion before failure occurs. Tests show that many failures in lock-corner boxes occur because ends and side split, nails pull from or split the edges of too thin ends, locks open and matched joints lack sufficient strength.

The Plywood Box

Plywood is a combination of two or more thin sheets of lumber glued together, with the grain of one ply at right angles to the adjacent face or faces, and therefore tends to equalize the strength parallel and across the grain. For that reason the thickness of the lumber used in the body of the box may be reduced as much as 75 per cent without any loss whatever in its serviceability.

Lumber does not shrink with the grain, but across the grain. It shrinks about 8 per cent from a green to a dry condition. If dry and subjected to humid conditions it swells. The shrinking or swelling of plywood in length and width, due to the cross banding of the grains, is so minimized that it is of no consequence and the warping and twisting of the plywood panels in boxes is eliminated.

Plywood adds to the complications of manufacture of wood boxes. The sheets of veneer of a predetermined size are cut from logs on very powerful lathes. This veneer is then kiln dried in large kilns which operate continuously night and day. The material is next taken to the gluing-up room, where glue is spread upon the surface by a mechanical spreader. The glued veneer sheets are then placed in a hydraulic press with heavy three-ply oak boards inserted between each of several layers, and a heavy pressure is applied. This pressure holds the panels perfectly flat and is maintained for a period of hours by the use of turnbuckles and I-beams applied while the wood is in the press. After the panels are thoroughly dried, they are trimmed to the desired size and are either nailed by nailing machines or stapled by large staplers driving long metal staples through the veneer into the reinforcing cleats.

Plywood boxes may be made in a variety of styles. Each box part is marked, indicating whether it be the end, side, top or bottom, and as each box part is complete, there are but six pieces or parts to be nailed together, thus simplifying assembling.

The thicknesses most generally used are $3/16$ in. and $1/4$ in., these being substituted for lumber up to 1 in. in thickness. It is possible, however, to make plywood in greater thicknesses or more plies than three, where conditions require.

The uses of plywood boxes are infinite. Plywood

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cases are used for cottons, woolens, prints, worsteds, blankets, yarns, hosiery, underwear, silks, gloves, corsets, shoes, buttons, soap, confectionery, silverware, rubber goods and wherever a wooden box is required. Special cases are made for talking machines, tires, silverware, boots and shoes, hats and other articles.

The Wirebound Box

The wirebound box is a container made from thin material, usually lumber, bound with two or more strands of steel wire and stapled or nailed to a strong framework of wood. This box, in its knocked-down form, consists of only three separate parts, the box-blank and the two ends; the box-blank, or mat, comprises the consecutive faces, top, side, bottom, side, connected only by the continuous steel binding wires.

Cartoning Machinery

(*Continued from page 70*) to the extent that the plant handy man can hardly go wrong.

The advantages of adjustable cartoning machines to producers of cartoned products lies chiefly in their saving of floor space. In some cases three or four production lines that heretofore produced only one size, each operating only part of the time, have been combined. The resulting saving in floor space has been considerable, not to mention the greatly decreased capital expenditure for the necessary equipment.

Another project that continues to occupy the attention of the development departments of certain manufacturers is that of cartoning machines with which are combined means for automatically wrapping the product before it is cartoned as is the custom with such products as bars of soap, baking chocolate, certain candy bars, etc. A variation of this development has produced a number of cartoning machines that are provided with means to wrap the carton, after it has been filled and closed; in wax paper wrapper in some cases, in others, a transparent cellulose wrapper. Still another variation labels glass vials and then cartons them.

These combination machines have already reached a high degree of perfection. In some cases the speeds attained exceed the speeds available in machines for the wrapping only. Their value lies in the saving in handling products between units and also the saving in floor space.

The Displaying of Packages

(*Continued from page 82*) fool-proof and simple in construction and easy to open and use.

4. They must be practicable from the standpoint of handling in collating and shipping.
5. They must be cheap enough in price so as not to be a selling burden against the cost of the goods, but, rather, a selling help.

These are the essential requirements of good package displays. Other features to be considered are the size, shape, and color of the package, the market which it is desired to reach and the human appeal or selling point to be emphasized. All these factors must be considered if the display is to be an effective retail selling agent.

Wire rack display which permits advantageous showing of individual packages. Courtesy of Union Steel Products Company

In approaching the design of a display for any particular package it is wise to begin with an analysis of the type of store in which it will be sold. If the product is to be displayed on the crowded counters of chain stores it is frequently advisable to employ the double-tier or balcony type of display. Containers of either of these types require but little room on counters and for that reason are often granted counter space that would not be accorded to a larger display. A group of several containers of this type offers an easy solution of the window display problem to the small retailer whose window space is limited.

Lithographed steel display which carries sales messages and offers descriptive booklet. Courtesy of Sommers Bros. Company

A fold-down, theft-proof container is frequently used for merchandise in small, easily concealed packages of relatively high value. These displays are made with a folding flexible easel which permits the top flap to be folded down for shipment and the merchandise is held in a single compartment from which it may be removed by the dealer through a hidden opening cut in the back.

Several types of display containers are constructed so that they may be hung on a nail or tack driven into the edge of a shelf. This method frequently secures display space in a crowded shop that would not be granted to another type of container.

Display containers are frequently used to display trade names and advertising slogans which cannot be included in the package design because of the size of the individual container.

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SELL MORE TO MANUFACTURERS

YOU CAN WITH PACKAGE ENVELOPES

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Manufacturers of Galvanized Stapling Wire, Package Reinforcements, Bundling Equipment and Conveyor Belting. Send for Catalog No. 30

STAPLING WIRE

Acme Silverstitch, the galvanized stapling wire, is made in four thicknesses: .014, .017, .020, and .023.

It is manufactured by an exclusive process which permits greater accuracy in temper, width and thickness than has heretofore been possible in stapling wire. The galvanized finish will resist rust longer than the ordinary copper-wash finish.

Silverstitch is the only stapling wire wound in five and ten pound *continuous* length coils. The ten pound coil is widely used because it reduces time spent in changing coils and threading the machine 50%.

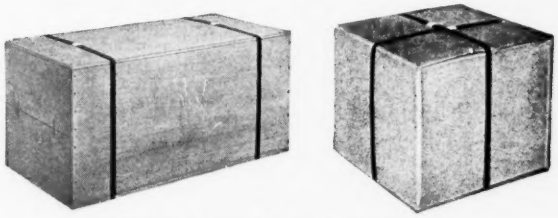
A free five pound coil of Silverstitch will be gladly sent without obligation to stapling wire users who would like to test it in their own plant.

NAILLESS STRAPPING EQUIPMENT

Acme Nailless Band is fast, efficient, and economical for the reinforcement of all types of packages. The Acme Seal is one of the strongest that it is possible to secure through the use of a mechanical hand sealing device.

Sealed Sample, Acme Nailless Band

The Acme Method increases the efficiency of the container, insures security in transit and safe delivery. In many cases it makes possible marked reductions in the thickness of container material, thereby reducing freight cost as well as package costs.



Nailless band applied to wood and fibre boxes

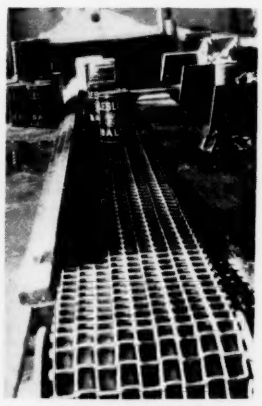
Manufacturers shipping in small packages can save money, in many instances, by strapping several packages together to secure a different express classification and a lower rate.

5 boxes bundled

Catalog No. 30 shows many ways to cut shipping cost. Sent free on request.

STEEL CONVEYOR BELTING

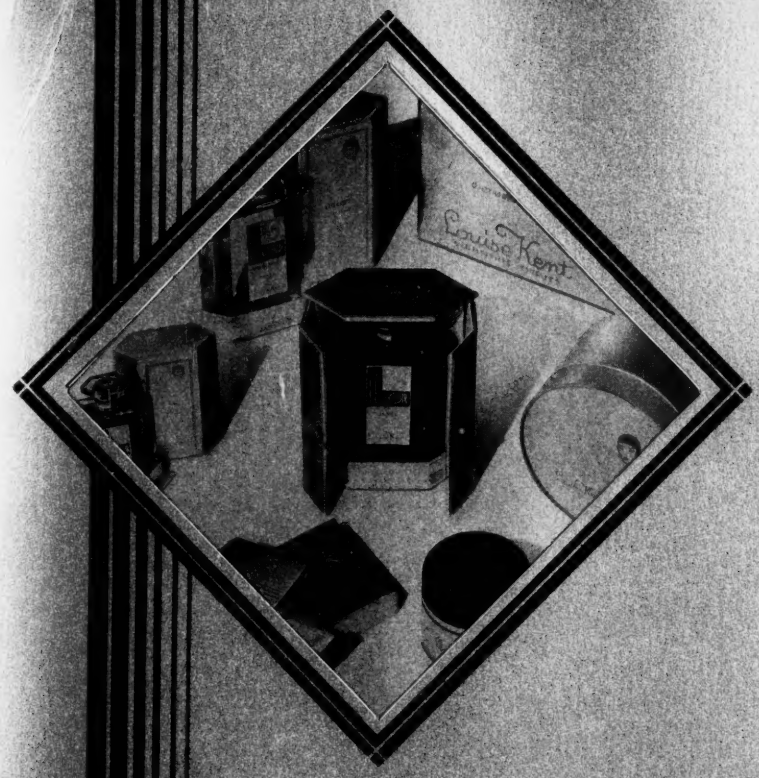
Acme Steel-Mesh Conveyor Belting is especially adapted for conveying products through drying ovens; for sorting, assembling, and many other manufacturing operations. The open mesh allows free circulation of air, heat, water, and steam. Products may be washed, cooled, filtered, sprayed,etc.



Drying labels on salt cartons

Acme Conveyor Belting is known for its long life under gruelling conditions. Worn sections are easily replaced. It may be lengthened or shortened by a simple operation. Not affected by alternate drying and wetting and will not shrink or stretch.

Acme Belting may be had in any length. Widths at two inch intervals are available up to 60 inches. Send for descriptive folder and sample section.



QUALITY
•
SMARTNESS
•
DIGNITY
•
PRESTIGE

All these highly desirable sales producing qualities are imparted to products that are packaged in cartons or boxes fashioned from ARTCOTE Gold and Silver Papers.

As a means of identifying the package and making it stand out from other merchandise- ARTCOTE Gold and Silver Papers are without equal. Their brilliant, gleaming non-tarnishing surfaces quickly catch the eye of the prospective purchaser and make consumer acceptance inevitable.

Play safe and be sure of quality
Specify and use;

ARTCOTE
TM. REG. U.S. PAT. OFF.

GOLD AND SILVER PAPERS

Manufactured by
ARTCOTE PAPERS
INC.
IRVINGTON, N. J.

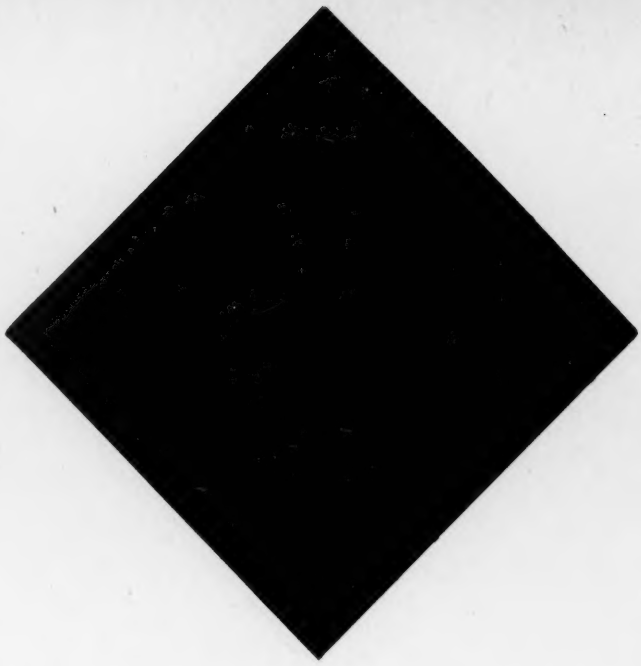
inted in U.S.A.

XUM

ARTCOTE

GOLD AND SILVER FOLDING CARTON STOCK

THOROUGHLY PRACTICAL SERVICEABLE AND ECONOMICAL



It is Practical because it meets every essential requirement.

The stock is uniform and has an exceptional printing surface on both sides. One side has a Gold or Silver finish, the other a clean, clear white.

It can be scored, folded and glued with the assurance of perfect results.

It is Serviceable and Economical because cartons made from it are strong and durable. They retain their original lustre throughout their use because ARTCOTE Gold and Silver Folding Carton Stock is Tarnish-proof, Water-proof and Scuff-proof.

This Sheet is ARTCOTE No. 3316-16 point. Folding Carton Stock.

This grade is also furnished in 20 or 24 point thicknesses in gold or silver.

Samples and information gladly sent on request.

Manufactured by

ARTCOTE PAPERS INC.

IRVINGTON, N. J.

Printed in U. S. A.

XUM

133 Screen Half-tone Engraving

The accompanying group shows how admirably ARTCOTE papers are adapted to give a harmonious family resemblance to various packages in a high grade line of cosmetics.

The boxes are covered with Silver paper suitable for box work.

The cartons are fashioned from folding carton stock, and the labels from a grade especially suited for label use.

THERE ARE ARTCOTE GOLD AND SILVER PAPERS FOR EVERY PURPOSE

Whether you require a set-up box or folding carton, an attractive label or seal, displays, printed matter or other promotional material, there is an ARTCOTE Gold and Silver Paper made especially for the purpose.

Tell us of your requirements. Samples and information will promptly be sent to you.

PLAY SAFE AND BE SURE OF QUALITY;

SPECIFY AND USE:

ARTCOTE

GOLD AND SILVER PAPERS

Manufactured by

ARTCOTE PAPERS INC.

IRVINGTON, N. J.

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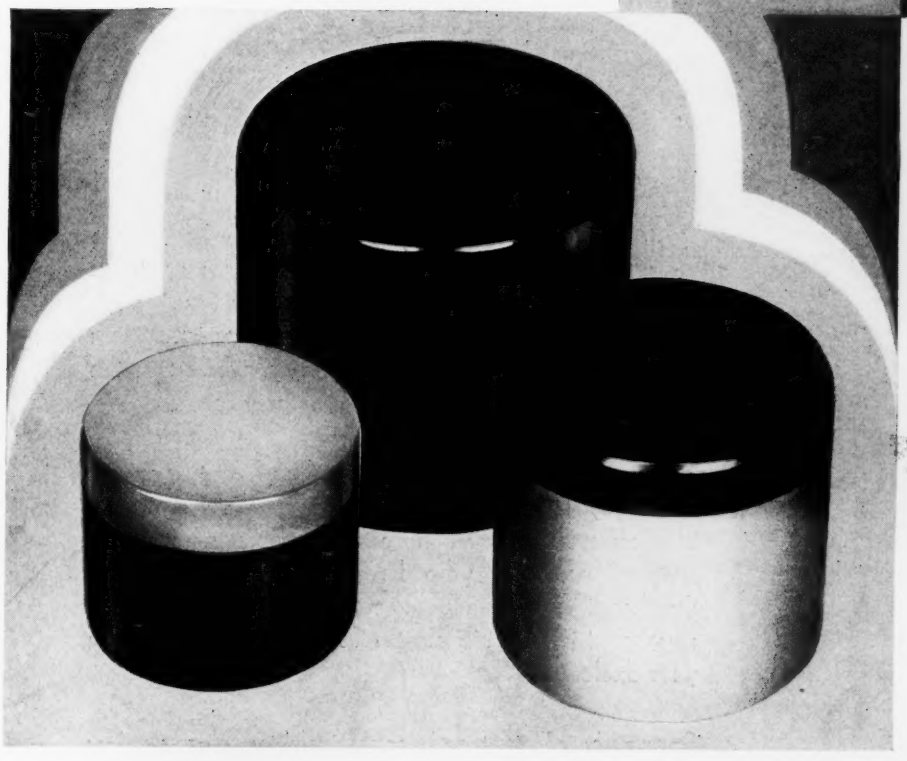
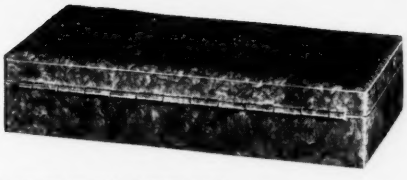
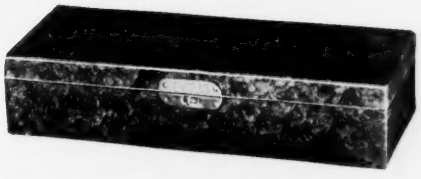
PERFECTLY MOLDED CONTAINERS AND CLOSURES







PLASTICSMITHS

Aldur

BAKELITE

DUREZ

PLASKON

AS specialists in molded plastics, we have designed and molded a great variety of successful containers and closures.

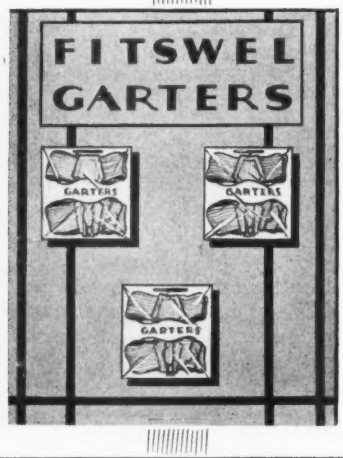
The Durez Jars shown above are carried in stock and can, therefore, be supplied promptly. They are available in one, two, four and eight ounce sizes—and in any color.

The Boxes are unusually attractive containers for candy, writing paper and other small articles. Can be molded in any material and any color. Note the patented hinge on the box at the left.

Samples will be sent gladly for examination and approval. We shall be pleased to cooperate with you in the designing of new containers or closures for your product.

ALLEN & HILLS, INC.
AUBURN, NEW YORK

XUM



MODERN MERCHANDISING METHODS

WITH ACME STAPLERS

TO display is to sell. The clean, neat, speedy way to attach your merchandise to display cards or stands is with Acme Staplers. If you are not now using this effective method for increasing your sales, investigate the possibilities for popularizing your product in the small-unit, large-sale markets, with display cards.

There are Acme Stapling Machines (hand, foot or power operated) to staple your particular needs. Acme Staplers are used by hundreds of manufacturers of all sorts of products, who have adopted this modern merchandising method. The display card method of merchandising is the most effective way of helping your dealers.

So speedy, efficient and economical have these staplers proven that there has been a steady increase in the demand for them. The price of these machines is so low that they pay for themselves quickly.

Send us a few samples of your product and let us offer suggestions for stapling them to display cards. No obligation incurred.

ACME STAPLE COMPANY

1645 HADDON AVE. **CAMDEN, N. J.**

THIRTY-EIGHT YEARS OF MANUFACTURING EXPERIENCE

XUM

ACME STAPLERS
FOR CARTONS AND SHIPPING CONTAINERS

No rough handling can affect the firmness of shipping cartons or containers stapled with Acme machines. Until containers are retired from service the staples remain in place.

Accurately drilled and milled, the machines last beyond expectation, for there is no play of staples to cause them to wear out. With renewal of parts Acme staplers have as many lives as a cat, for replacement of parts is easily and quickly accomplished.

ACME No. 65 DEEP ARM

The Acme No. 65 Deep Arm is an example of Acme efficiency. It staples carton ***bottoms*** up to 40 inches in depth. Both hands are left free by the foot power feature, assuring better and quicker work.

ACME TACKER No. D. C.

The Acme Tacker No. D.C. is for tagging packing cases or any purpose for which tacks, glue, etc., are needed. No hammering or pounding with the Acme Tacker—a gentle push on the plunger will automatically drive a staple adapted for its purpose.

—•—

The Acme No. 1-DA, illustrated at the left, is small and efficient. It is a hand-power machine for stapling carton ***bottoms*** up to 14 inches deep. It is very sturdy and is equipped with improved lever-action. Shipping departments function more smoothly when No. 1-DA is present.

—•—

The Acme No. 1-H, illustrated on the right, is a practical hand-power stapler for assembling telescope cartons. It handles side stapling up to 5 inches in depth. It is sturdy, small and compact, and has improved lever-action. Whether you use this machine for stapling cartons, or as an auxiliary to the larger Acme power machines, you will find it remarkably efficient.

ACME No. 62

This Machine assembles Telescope Cartons. It is ideal for side stapling. The hands of the operator are free, as with all foot power machines, an added means of greater accuracy. No. 62 can be had with an 8¼ inch or a 12 inch throat.

ACME No. 1-DA

ACME No. 1-H

ACME STAPLE COMPANY

1645 HADDON AVE. **CAMDEN, N. J.**

THIRTY-EIGHT YEARS OF MANUFACTURING EXPERIENCE

XUM

FASTENING MACHINERY

TYING - WRAPPING - SEALING - BANDING

(TWINE) (CELLOPHANE) (TAPE) (PAPER)

CELLOPHANE WRAPPING MACHINES:

SEMI-AUTOMATIC & FOOT POWER

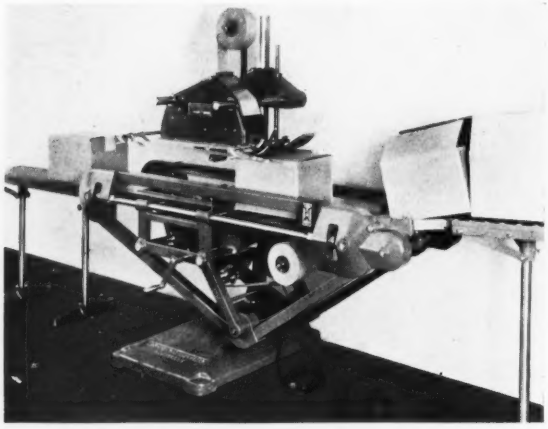
ALSO FOR KRAFT

GLASSINE AND WAXED PAPERS

Greater production—less material.

Suitable for meats, food products, shirts, textiles; cartons and bulk merchandise.

CONTAINER TAPE SEALING MACHINES:

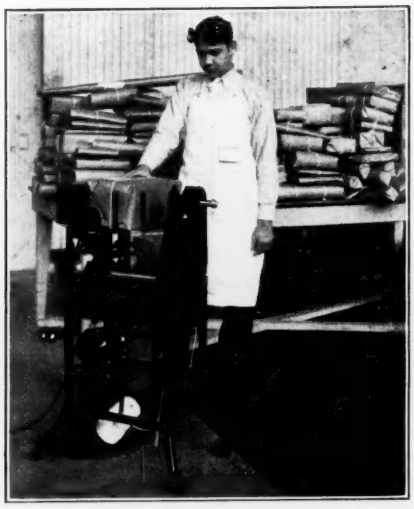


Fully automatic tape sealers made in three different models:

1. Top center seam taper
2. Bottom center seam taper
3. Top and bottom seam taper

Automatically applies, measures and seals with gummed tape in compliance with the rulings of Classification Committee.

BUNN TYING MACHINES:



Can tie 30 packages per minute, any shape, any size—tighter, firmer than human hands.

Sizes: from a match box up to 34½″.

Weights: up to 50 lbs.

Single, double or triple wrap.

Also new cross-tie models.

Now used by over one hundred industries.

A CONSULTATION
COSTS YOU NOTHING
AND MAY SAVE
YOU MUCH

AMERICAN STEEL CHASE CO., Inc.

Fastening Machinery Specialists

122 CENTRE STREET

NEW YORK CITY

COLLINS BOX PAPERS

WILL DRESS UP THE NEW PACKAGE

- To catch the buyer's eye—to keep a product in the spotlight — requires a critical choice of box papers best suited for the purpose.
- Collins can give you a wide range of colorings, embossings and finishes to meet most specifications — for there is a suitable paper for practically every box need in the Collins Standard Line.
- For special purposes the Collins organization has facilities to make special papers of many types—at an economical cost.
- We suggest that you write for sample books of Collins Box Papers.

A. M. COLLINS MFG. CO., 1518 WALNUT ST., PHILADELPHIA

BOSTON: H. L. Goodman, 110 High St.

PACIFIC COAST: Zellerbach Paper Company

Sample of Series 203—Green

XUM

THE ARABOL MFG. CO.

Telephone
NEW YORK OFFICES
AShland 4-8490

Cable Address
"ARABOL," New York

FOREIGN AGENTS:
Representation in
GREAT BRITAIN, AUSTRALIA,
CUBA, MEXICO
and other countries

Established 1885

Executive Offices
110 East 42nd Street
New York

Eastern Factory at Brooklyn, N. Y.
Western Factory at Cicero, Ill.

WESTERN FACTORY AND
OFFICE AT
CHICAGO: (Cicero, Ill.)

OFFICES & WAREHOUSES AT
Philadelphia, Boston
New Orleans, Atlanta
Seattle, San Francisco
Toronto and Montreal, Can.

Largest and Oldest Adhesive Manufacturers in the World

GLUES, PASTES and GUMS

For all kinds of packaging operations

FOR CARTON SEALING

FOR CARTON WRAPPING

FOR TIN LABELING

FOR GLASS LABELING

FOR SEALING SHIPPING CASES

FOR PAPER BOX MAKERS

FOR PAPER BAG MAKERS

For Special Adhesive Work

For almost 50 years this organization has supplied packaging adhesives to the leading manufacturers and packers of the country.

Whether your packaging proposition requires labeling, wrapping, sealing or other adhesive operations we have the experience and the facilities for supplying the *right* glue to suit each specific need. *Reliability* and *Uniformity* have always distinguished ARABOL products.

We have perfected a special adhesive for every make of machine on the market which applies glue or paste in the process of packaging. Most of these adhesives have been developed in co-operation with the machine manufacturers and are recommended by them for producing best results with their equipment.

Each year we receive thousands of inquiries about glues, gums and pastes for packaging requirements. These inquiries come to us from practically every trade and every field of industry, and they cover a great variety of adhesive operations. We give careful study to each inquiry, and in most cases we can recommend an adhesive that will do exactly the work required. We are often asked to suggest a cheaper glue to take the place of a more expensive product.

All users of adhesives are invited to avail themselves of this service, without obligation. Whether adhesive requirements are simple or complicated we will be glad to offer suggestions based upon our adhesive experience of almost 50 years.

XUM

For 1932 . . . Better Boxes For Bigger Sales

Illustrated are a few of the wide variety of boxes we are called upon to make for nationally known manufacturers and importers . . Since we work with leather, velvet, imitation leather, satin, fancy cloths and fancy papers, as well as with all types of lacquer finishes, we are in a position to offer our clientele a wide range of designing possibilities . . Our prices are moderate, consistent with quality and with today's merchandising needs . . A representative will be glad to call to discuss your box and display work with you and to place the services of our designing staff at your disposal.

ARROW
MANUFACTURING CO., Inc.
DECORATIVE BOXES AND DISPLAYS
15th & HUDSON STREETS, HOBOKEN, N. J.
Telephone HOboken 3-8472 or REctor 2-1251

ARROW PRODUCTS INCLUDE BOXES AND DISPLAYS FOR

Watches	Perfume	Pen and Pencil Set Boxes
Rings	Toilet Articles	
Necklaces	Leather Goods	Brush and Comb Set Boxes
Jewelry Items	Fancy Set Boxes	

Fancy Wood Boxes	Merchandise Display Stands
Pressed Wood Pulp Boxes	Display Trays
Steel Boxes	Velvet Display Fixtures
Fancy Cardboard Boxes	Salesmen's Sample Trays

HOW TO SELL *with* Cellophane BAGS

• *There is a lot more to it than just buying a* **TRANSPARENT** *bag . . .* Our business is to help Cellophane work for you. To make it SELL. To help you choose the right size and shape of bag. To provide the right combination of different weights and kinds of Cellophane that will give the best possible bag for your product and your merchandising method. To design your printing display. And to give you a bag that is made right . . . looks right . . . and is priced right.

We make millions of plain and printed bags every week . . . flats, squares and satchel bottoms . . . single and duplex . . . the best-made bags . . . and the best printed. Adhesives are specially prepared . . . the result of extensive laboratory development. Every bag is 100% DuPont Cellophane. And . . . don't overlook *this* . . . we are prepared to give you *real cooperation* on deliveries.

To Sell with Cellophane, first talk to someone who can speak with authority. We can. We'll gladly tell you the things years of pioneering have taught us. And our own experienced factory representatives in nearly all large centers are at your service.

THE DOBECKMUN COMPANY

3301 MONROE AVE.
CLEVELAND, OHIO

* *If you wrap your product see the next page . . .*

XUM

HOW TO SELL *with* *Printed Cellophane* . . . IN ROLLS

Wrap it by Machine . . . the* MODERN WAY . . . *with Printed Roll Cellophane

Like making Cellophane Bags . . . it's easy to print Cellophane in rolls . . . when you know HOW . . . but you won't find the answers in any book.

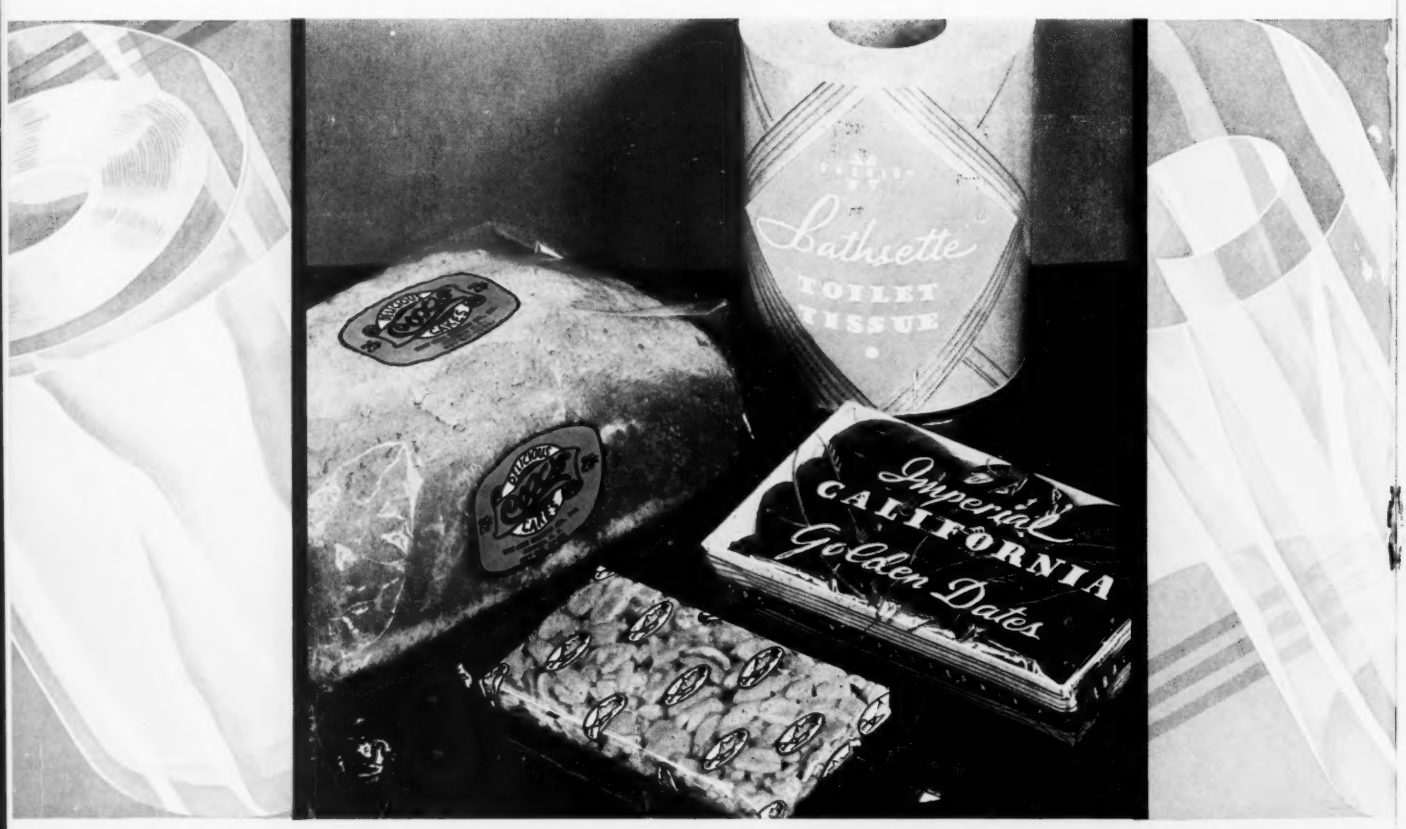
For the past three years we've been writing our own answers. Long hours of experimenting have shown us definitely what can be done . . . and what can't. How to print evenly . . . brilliantly. How to register two, three and four colors accurately. How to speed up the process and correspondingly cut down the cost.

And that isn't all. Experience has told us what kind of Cellophane . . . what weight . . . what design will go furthest toward selling any product that can, and should, be wrapped in Cellophane. Experience likewise has shown us that *quality always pays*. We use nothing but genuine DuPont Cellophane. Nothing but the highest quality of oil printing inks — and the finest printing.

Don't let anyone tell you "It can't be done with Cellophane," until you've asked Dobeckmun.

THE DOBECKMUN COMPANY

3301 MONROE AVE.
CLEVELAND, OHIO



* *See previous page for "How to sell with Cellophane Bags."*

XUM

Armstrong's Closures

CORKS OF ALL KINDS . . . ARTMOLD CAPS . . . ARTMOLD JAR COVERS . . . EMBOSSED TOP CORKS
DAUBERS . . . CROWNS . . . DU PONT CELLULOSE CAPS . . . DU PONT CELLULOSE BEVERAGE BANDS
APPLICATORS OF ALL KINDS . . . RUBBER STOPPERS . . . CAP LINERS . . . BUNGS

Address: Armstrong Cork Company, Lancaster, Pennsylvania

CORKS OF ALL KINDS

Tapered, flanged, straight, round top, wedge top, wood top, shells. Made in every size and shape you require, Armstrong's Corks are graded in unvarying standards. Samples on request.

ARTMOLD CAPS

Molded plastic caps offered in a large selection of standard designs and also in distinctive, made-to-order shapes. Standard designs include a complete range of both long and short skirt caps in sizes from 13 mm. to 28 mm. A full line of colors and tints to harmonize with any package.

ARTMOLD JAR COVERS

Add beauty to any jar. They are molded in 19 standard sizes, 33 mm. to 100 mm., and in a wide range of colors. Send us your jar to be fitted and see what a difference these smart covers make.

BRASS CAPS

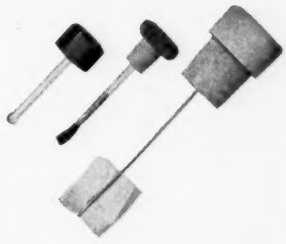
A type of continuous thread, brass base caps made in both single and double shell styles. Standard as well as special designs are offered in attractive metallic and lacquer finishes. A complete range of sizes from 13 mm. to 33 mm. is available.

EMBOSSED TOP CORKS

Combine a colorfully decorated hardwood top with the secure seal of a cork. Made to order in your own design—reproducing your trade-mark, monogram, or other insignia in colors. Moderate in cost, particularly when ordered in lots of 10,000 or more.

DAUBERS AND APPLICATORS

of all descriptions. As pictured, applicators can be furnished in combination with Artmold Caps, Embossed Top Corks, Rubber Stoppers, and plain or wood top corks. Samples and prices on request.



DU PONT CELLULOSE CAPS AND BEVERAGE BANDS

used in conjunction with any other type of closure, add color beauty to the package. They also protect against contamination, leakage, and tampering. No machinery required to apply.

LINERS, CROWNS, RUBBER STOPPERS, BUNGS

Armstrong offers a complete line of these various closures, and laboratory facilities for running tests to determine the proper liner for your purpose. Write for details.

LABORATORY AND DESIGN SERVICE WITHOUT OBLIGATION

We are constantly running tests in our laboratories to compare the chemical effects of different preparations on liners, caps, etc. Thus the manufacturer whose product is being tested is aided in the selection of the *best* closures for his own needs. This service is offered to you without obligation.

In matters of design, we are similarly engaged. Our Package Styling Department, with a staff widely experienced in the packaging field, is prepared to help you with the design of your package, not only on closure design, but also on containers, labels, and cartons.

There's no charge or obligation for these services. Simply send us your present package and outline your needs! Or write for samples and prices of the closures that interest you. Armstrong Cork Company, 909 Arch Street, Lancaster, Pennsylvania.

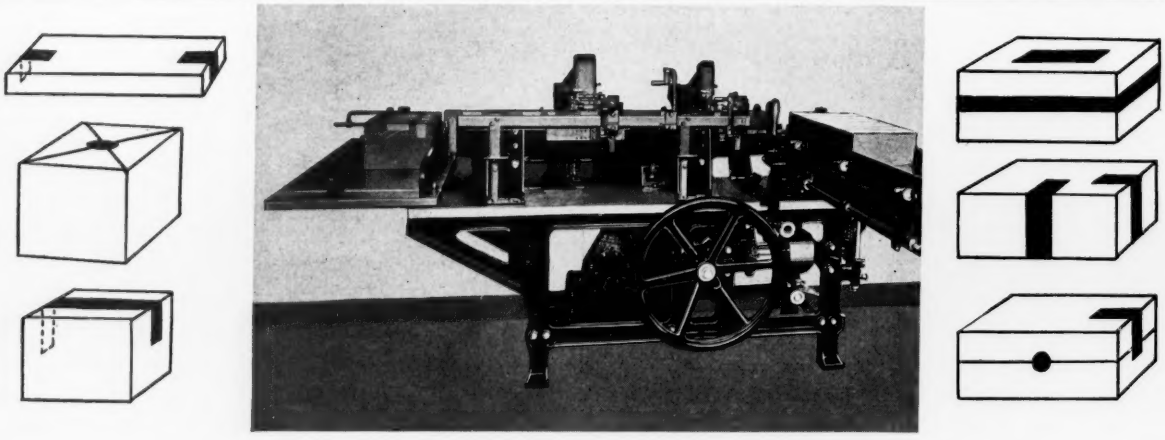
ARMSTRONG'S CLOSURES FOR EVERY SEALING NEED

XUM

ARENCO MACHINE COMPANY, INC.

25 West 43rd Street, New York, N. Y.

Designers and Manufacturers of Automatic Packing Machines, Stamping and Labeling Machines



Dependable Machines for Affixing Labels to Paper or Cellophane-Wrapped Boxes or Packages

Arenco Labelers affix with ease labels and stamps to moisture proof Cellophane at high speed. Ever since moisture proof Cellophane became popular as a wrapping material, these machines have been in use for this purpose.

The labels can be applied in a variety of ways, as shown by the sketches above.

Several different types of these machines are obtainable for labeling, depending on the size of boxes handled and whether single or double labels are affixed.

ARENCO TYPE "TAV" DOUBLE LABELER
for Small Boxes

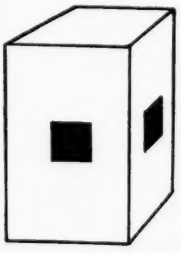
This machine handles the same sized box as the Type TAF Machine, namely, 2″ x ½″ x 2″, up to 6″ x 4″ x 2″.

The TAV Machine is essentially two TAF Machines combined into one, working in synchronism. It was originally designed for the American Tobacco Company to affix both the ordinary revenue stamps and the small oval seals on Melachrino boxes. This machine is a great labor saver. Only one girl operator is needed for speeds up to 120 r.p.m. The labels can be placed in any desired position. The discharge can be arranged to suit the customer's requirements.

The machine is supplied with individual ½ HP motor and a set of tools. Production: 4000 to 7000 boxes per hour.

The Arenco Machine Company also designs and builds automatic machines of any desired type. Literature will be sent upon request.

ARENCO TYPE "TAF" SINGLE LABELER
for Small Boxes



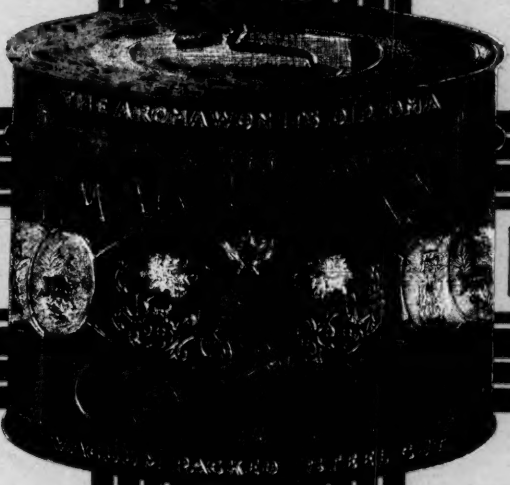
This machine handles boxes 2″ x ½″ x 2″, up to 6″ x 4″ x 2″. It applies single labels. The labels should always be furnished ungummed and unperforated. The standard machines work with cut labels that are stacked flat in a magazine, but machines can be made to take them from a bobbin, punched with registering holes.

The feed of boxes and labels is accomplished while the machine is in operation, and without loss in production. Only one operator is needed at speeds up to 125 r.p.m. The machine is delivered complete with a ½ HP motor and a set of tools. Production: 4000 to 7000 boxes per hour.

ARENCO TYPE "TAJ" DOUBLE LABELER
for Large Boxes

This machine is designed to affix two labels on large sized boxes—sizes 4″ x 6″ x 1½″, to 6″ x 9″ x 3″. Only one operator is needed at speeds ranging from 50 to 75 r.p.m. An individual 1-HP motor is supplied with the machine, which can be made interchangeable to handle several different sized boxes by means of simple adjustments. Production: 3000 to 5000 boxes per hour.

USE CAMEO-CUT LABELS & SEALS FOR STYLE, QUALITY & SALES APPEAL



CAMEO
DIE CUTTING & ENGRAVING CO.
140 W. 22D ST., N.Y.C. WATKINS 9-4904

XUM

DO YOU want to keep up with your competitor? In this age of style and beautiful packages it is important that your merchandise be dressed up with a neat looking and artistically designed label. For years we have been making labels which have established for themselves a foremost position in the packaging field.

A modern ART and ENGRAVING department and a printing plant equipped with the latest machinery, assures you QUALITY, ECONOMY and SERVICE. Consult us about your needs for new and distinctive labels and seals. Send us a rough idea of the label you have in mind and we shall be glad to submit a sketch and quotations.

Let us estimate on the labels and seals you are now using.

CAMEO DIE CUTTING & ENGRAVING CO.

140 WEST 22nd STREET NEW YORK CITY

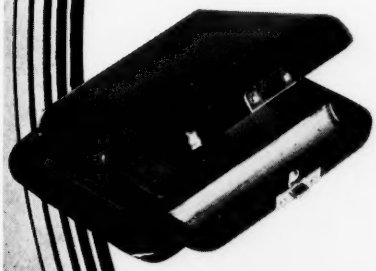
Telephones, WAtkins 9-4904-4905

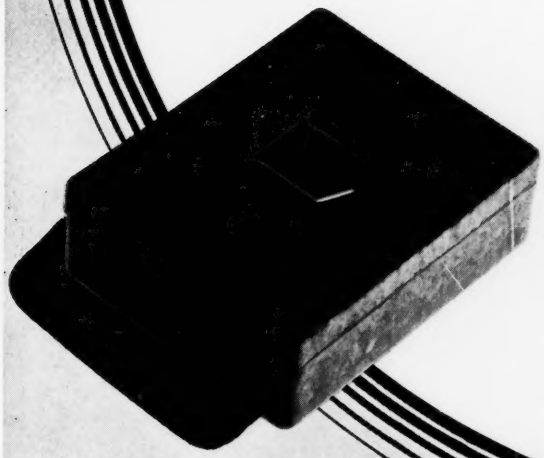
Is Your Package A Better Salesman Than Your Competitor's?

IT will be if you entrust it to the experienced hands of the Auburn Molders. They combine beauty and utility in such an alluring way as to greatly increase the appeal of the product packaged in them—which means speedier turnover for the dealer and a lasting memory (advertisement) of the merchandise contained—these features alone offer an advantage unobtainable in any other product regardless of price.

They are builders of good will—they differentiate the product—they place the product in a class by itself.

May we talk over with you the advantages of using these attractive —never forgotten containers for your products?

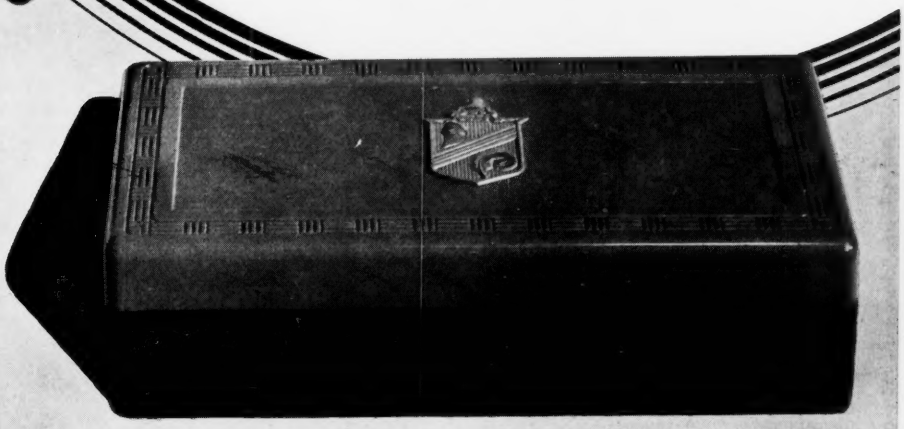




Auburn
BUTTON WORKS INC.

AUBURN, N. Y.

Since 1876 Molders of Celluloid and Phenolic Compound Parts, also Lumarith, Beetle, Plaskon, etc.



ATTRACTIVE PACKAGES MOLDED BY *Auburn* ARE POWERFUL INCENTIVES TO PURCHASE

CELLOPHANE Packaging at Low Cost

Quantity Production . . . Continuous Automatic Operation

Many Sizes and Types of Packages Carrying a Wide Variety of Products Can Be Produced by the AUTOMAT

THE Automat can reduce production costs and improve the appearance of a wide variety of packages. The Automat is adaptable to many sizes, shapes and styles of packages.

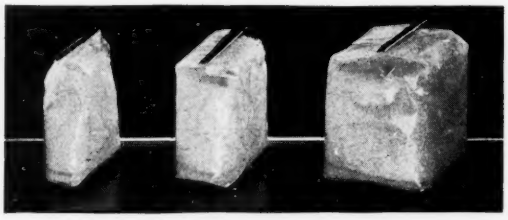
Peanuts and nut meats of all kinds, Coffee, Tea, Cocoa, Cereals, Salt, Beans, Rice, Raisins, Candy, Prunes, Macaroni, Spaghetti, Bath Salts, and many other products of like nature may be successfully packaged on the Automat at a material cost less than the price of empty bags of similar material.

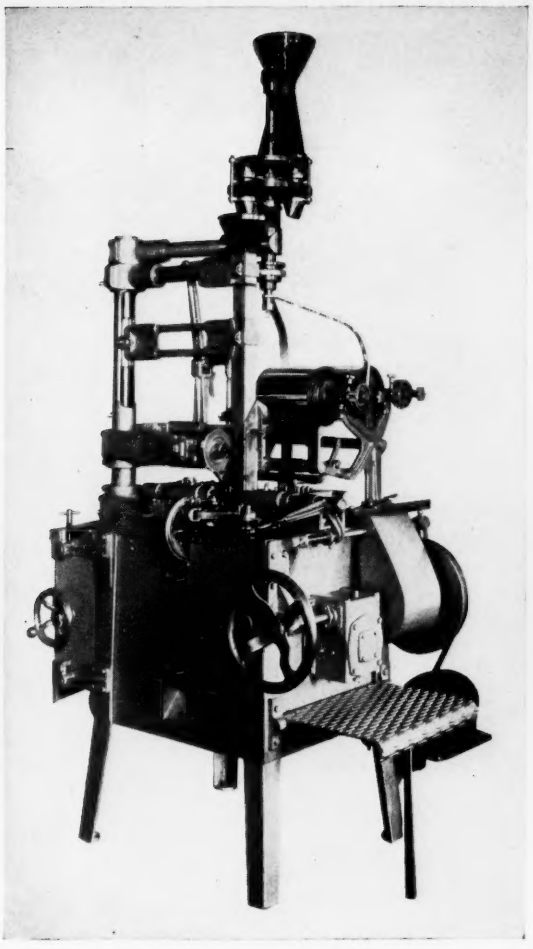
Brand or Commodity Names Can Be Included as Actual Part of Package

The Automat can be adjusted to include printed strips bearing the brand or commodity name or any other desired printed or lithographed information as an actual part of the package. This becomes a part of the package, as it is formed by the machine and fastens with metal seal at top and bottom.

Thickness of Package Can Be Varied within a Few Minutes

The standard Automat is made to produce a package with end dimensions of $2'' \times 2''$, $3'' \times 3''$ or $4'' \times 4''$—however, these sizes are adjustable to any rectangular dimension within these sizes—example—the $2'' \times 2''$ end dimension may be easily adjusted down to $^5/_8'' \times 2''$; the $3'' \times 3''$ down to $^5/_8'' \times 3''$; and the $4'' \times 4''$ down to $^5/_8'' \times 4''$. The Automat can be built to produce packages of other standard sizes upon order.





This Machine Makes Possible Wider Use of Cellulose Wrapping Material

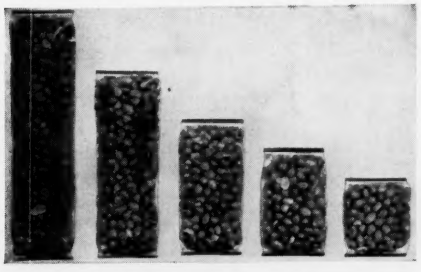
The Automat Packaging Machine forms, fills and seals in one continuous automatic operation. Uses cellophane or other transparent wrapping material either single or double wrap, fed from rolls. Will handle moisture-proof or plain material.

One machine will produce an average of 1750 packages per hour. One girl can operate a battery of machines. Speed of operation will vary with size of package and nature of product, but 1750 per hour is average.

Choice of a wide range of sizes is offered. The Automat will deliver a package of variable height from $^1/_{16}$" to 9", with end dimensions from $^5/_8$" × 2" to 4" × 4". This machine will adjust to make bags sealed at one end for products that cannot be fed through hopper. Floor space required is 45 inches × 43 inches. Powered by ¾ H.P. Motor.

The Loose-filled Satchel Type

The satchel or loose type package is very desirable for certain products. This allows a fold of the open end after portions of contents have been removed. Loose packed packages are desirable in many cases where counter display cards are used. Automat gives a perfect package of this type.

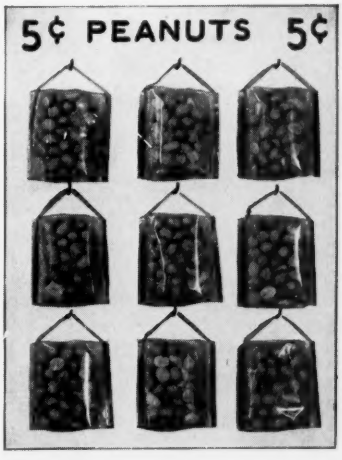


Length or Height Adjustable

A slight adjustment will change the length of the package. The change can be made without stopping the machine. This feature is desirable where different sized packages are required with uniform width and thickness.

Packages with String or Ribbon Handle for Display Boards

Some manufacturers keep their product out on display by furnishing the dealer with a permanent display board for hanging packages. The Automat will attach string or ribbon automatically in the same operation that makes the package. Other variations in style of package are possible. Automat engineers invite consultation concerning your packaging problems.



DEMONSTRATION OF THIS MACHINE WILL BE GLADLY ARRANGED AND PRICES QUOTED WITHOUT OBLIGATION

THE AUTOMAT MOLDING & FOLDING CO., 16-18-20 Broadway, Toledo, Ohio

New York Office
43 Murray St.

AUTOMAT
AUTOMATIC PACKAGING EQUIPMENT

Los Angeles Office
306 Calo Building

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BOND
COLLAPSIBLE
TUBES
Tin or Lead
Plain or Lithographed
A COMPLETE LINE
FOR EVERY PURPOSE
BOND TUBES are created for the most fastidious—yet they satisfy the most practical.
Our exclusive coating enamel and nitro cellulose lacquer intensify the beauty and utility of the tube and add *selling power*.
Many of the attractive tubes on the market have been *originated* by BOND.
Tell us your problem.
"BOND TUBES WITH BOND SERVICE"
BOND MANUFACTURING CORPORATION
WILMINGTON, DELAWARE
U. S. A.

ANNOUNCING

A new, original, superb line of box coverings to help you achieve results never before possible.

M. H. Birge & Sons Company—which is internationally known for the high-grade wall papers it has designed and produced for almost a century—now offers its facilities and resources to organizations using fancy box papers.

It has established a new division for the designing and printing of—

TRANSPARENT	CELLULOSE
BOX	TISSUE
SUEDE	FLOCK

Papers—in reels or reams, in one to eight colors, oil or water colors.

Samples and full information sent on request.

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BUFFALO, N. Y.

Moisture-Proof Colors Printed on Moisture-Proof Cellulose

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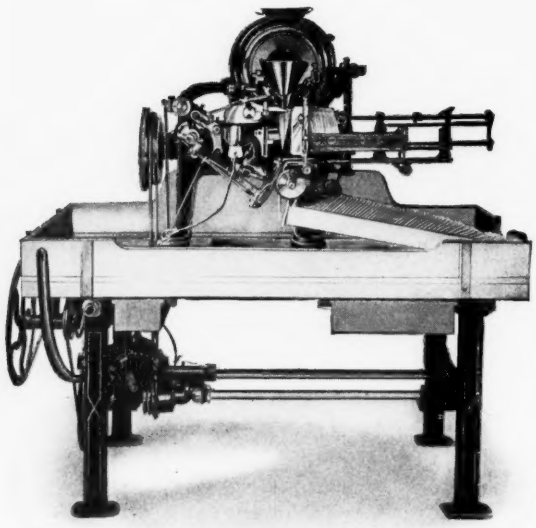
Can the Brown Machine packet my Product?

- Tea
- Pills
- Nuts
- Seeds
- Coffee
- Starch
- Cereals
- Tablets
- Candies
- Gelatine
- Salt, Sugar
- Plant Foods
- Candy Mints
- Hard Candies
- Food Powders
- Grated Cheese
- Seidlitz Powders
- Pudding Powders
- Medicinal Powders
- Cocoa and Chocolate Powders
- Face, Talcum, Sachet Powders
- Soap, Shampoo, Dyes, Soap Dyes
- Small Nails and Screws
- Tooth and Mouth Wash Powders

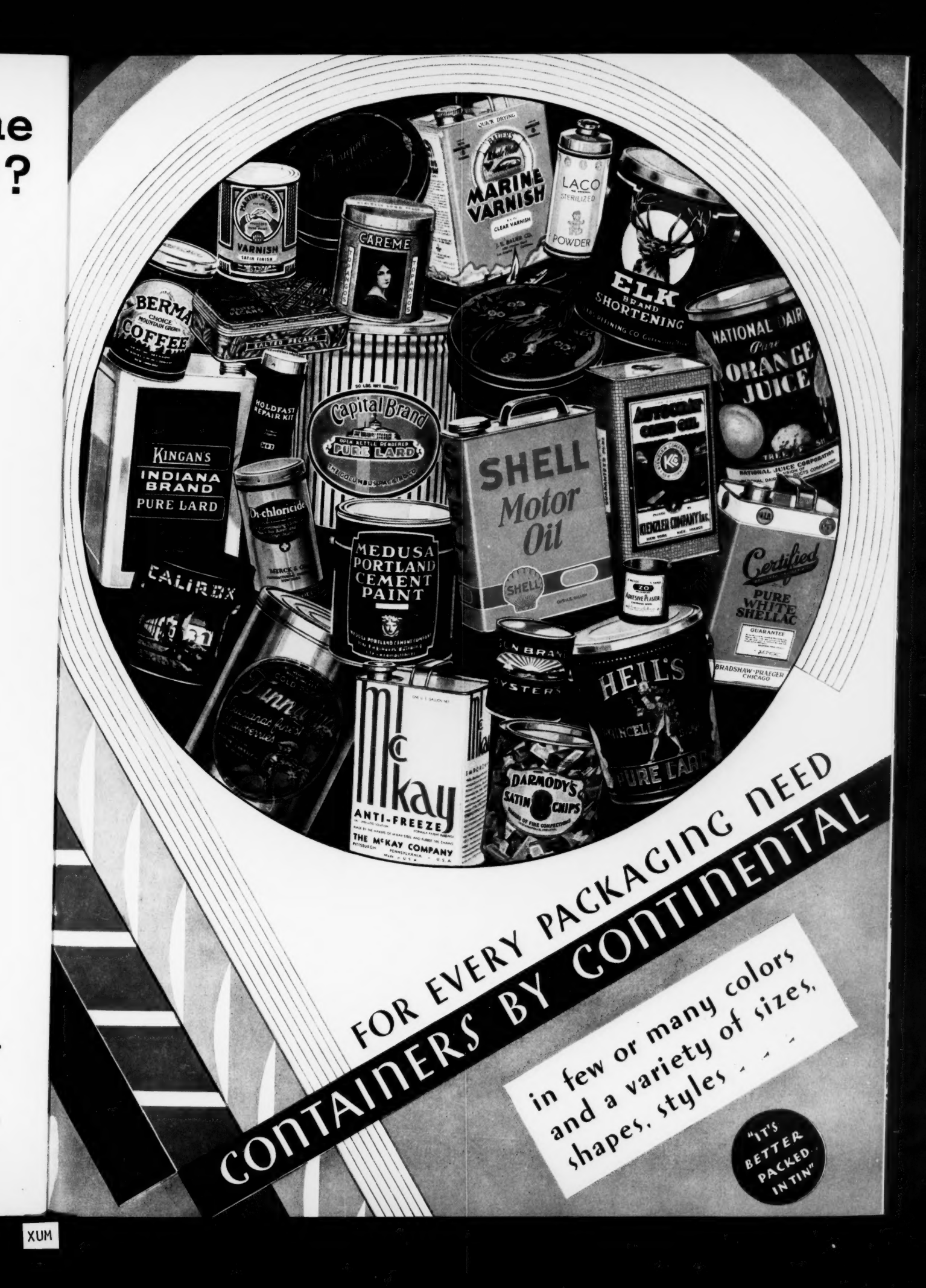
THIS question, the basic one of all packeting problems, must be answered separately for each product. Yet a general idea of the wide variety of sizes and shapes of packets that may be filled—a broad picture of the different types of products that have for years been successfully handled by Brown Machines—will quickly demonstrate that your product, too, is capable of efficient, economical packeting upon a Brown Machine.

At the left is a list of a few of the products regularly packeted upon Brown Automatic Machines. Note how varied their packaging properties are—granular, odd-shaped, light, weighty, fast-flowing, slow-moving—yet no matter what the individual conditions imposed by the size and shape of the product (within the broadest of limits) the Brown Machine is able to handle it efficiently.



BROWN BAG FILLING MACHINE COMPANY
Fitchburg, Mass.

XUM


MARINE VARNISH
CLEAR VARNISH
LACO
STERILIZED
POWDER
VARNISH
SATIN FINISH
CAREME
BERMA
COFFEE
ELK
BRAND
SHORTENING
NATIONAL DAIRY
Pure
ORANGE
JUICE
HOLDFAST
REPAIR KIT
KINGAN'S
INDIANA
BRAND
PURE LARD
Capital Brand
PURE LARD
SHELL
Motor
Oil
Di-chloricide
MEDUSA
PORTLAND
CEMENT
PAINT
Certified
PURE
WHITE
SHELLAC
HEIL'S
PURE LARD
McKay
ANTI-FREEZE
THE McKAY COMPANY
PITTSBURGH PENNSYLVANIA
DARMODY'S
SATIN CHIPS
FOR EVERY PACKAGING NEED
CONTAINERS BY CONTINENTAL
in few or many colors
and a variety of sizes,
shapes, styles - - -
"IT'S
BETTER
PACKED
IN TIN"

WRITE — WIRE — PHONE
The Sales Office Nearest You

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Wolfe 9700

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Spaulding 8480

Cincinnati, Ohio
2510 Highland Ave.
Jefferson 2201

Dallas, Texas
1118 Praetorian Bldg.
Dallas 2-5924

Denver, Colo.
3033 Blake St.
Tabor 4261

Detroit, Mich.
1900 East Jefferson Ave.
Fitzroy 3292

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Montgomery 5-4700

Kansas City, Mo.
Guinotte & Lydia Aves.
Victor 7250

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REPRESENTATIVE HELP YOU WITH YOUR PACKAGING PROBLEMS...

THE Continental Representative, skilled in "Packaging to Sell," offers the knowledge and experience gained thru many years of helping solve the package problems of many diversified businesses.

He also offers the advantages of Continental's large resources—38 plants strategically located from coast to coast . . . sales offices in principal cities . . . completely equipped research and development laboratories . . . a skilled organization of engineers and designers—all "Partners in the Business," with a deep personal interest in serving you well.

You will find it to your advantage to consult a Continental Representative. Write, wire or phone the sales office nearest you.

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217 Brook Ave.
Passaic 3-2115

St. Louis, Mo.
P. O. Box 1242
Bridge 3550

Wheeling, W. Va.
Wheeling Steel Corp. Bldg.
Wheeling 3900

New York City, N. Y.
100 East 42nd St.
Ashland 4-2303

Chicago, Ill.
111 West Washington St.
Franklin 8711

San Francisco, Calif.
155 Montgomery St.
Garfield 7890

CONTINENTAL CAN COMPANY, INC.

NEW YORK: 100 E. 42nd St. CHICAGO: 111 W. Washington St. SAN FRANCISCO: 155 Montgomery St.

"It's Better Packed in Tin"

XUM

BURT MACHINE COMPANY

BALTIMORE, MARYLAND

CHICAGO, ILL. NEW YORK CITY SAN FRANCISCO LOS ANGELES

Manufacturers and Designers of Automatic Labeling, Casing and Shipping Container Sealing Machinery

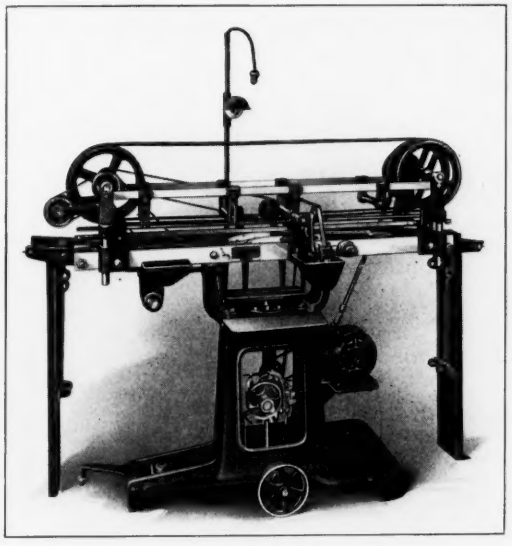
PRODUCTS:

Automatic Labeling, Casing and Sealing Machines.

LABELING MACHINES:

There are several models—one for spot labeling and also applying full length labels to #10 round cans; one for cans with ears and full length labels; one for smaller round containers; one for slip cover cans; and one for applying labels to flat or semicircular surfaces.

The "A" Models operate at the rate of 200 cans per minute when running at regular speed. Model "A" is for one size of cans, which can also be had for cans of two or more different heights, providing the diameter is the same. The adjustable Model "A" is an adjustable diameter type (two or more diameters) with the heights built to order.



The Model "A" machine, suitable for 4¼" diameter cans with rundowns raised, is about 10′ 7″ long with the standard length front and back rundowns which are 2′ 8″ each. Machines for smaller diameter cans are from 1′ to 2′ shorter. All standard machines are 1′ 6″ wide and about 4′ 5″ high.

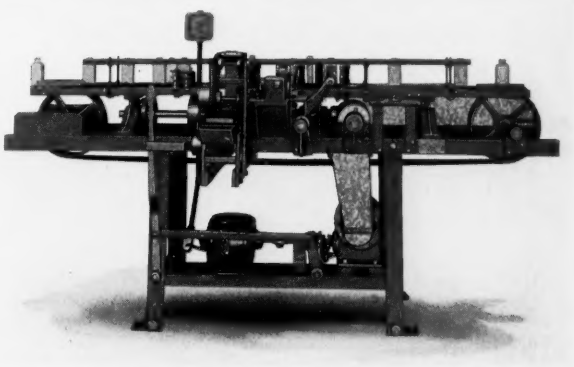
MECHANICAL INSPECTOR:

For round can labeling, the Inspector can be used between the Labeler and Caser to eliminate the possibility of any unlabeled cans going into the case—it is more positive than a human being for throwing out the occasional "shiner."

SHIPPING CONTAINER SEALING MACHINE:

This is suitable for receiving cases from the case packing machine and automatically gumming and sealing the case, making it ready for the shipping room. Easily adjustable for the range of cases in general use.

MODEL "E": This is for straight line application of labels to flat or semicircular surfaces, etc. The adhesive is applied completely to the surface to be covered by the label, the latter is then applied, after which pressure is utilized to effect a complete seal.



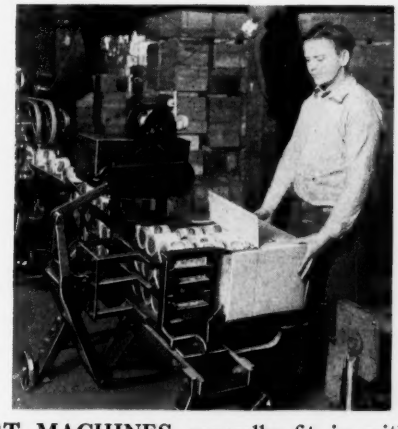
The single type model operates at a speed of about 60 of the average size containers per minute. A duplex model doubles the speed of the single type, this turning out about 120 per minute. The double type applies both front and back labels in one operation and can be supplied either in the single or duplex style. The Model "E" can be built for two or more size containers within a definite range, this being governed by how large or small the containers are.

The floor space of the single type is 7′ 6″ long x 3′ 4″ wide.

Double type: Same length as single—4′ 4″ wide.

CASING MACHINES:

They assemble the necessary number of packages and then push these into the case. The model shown, known as the ELECTRO, is for round cans and is 6′ 10″ long, 2′ 2″ wide. Other models are for rectangular packages.



BURT MACHINES generally fit in with other equipment such as Fillers or Cappers and, from this operation on, provide mechanical handling of the individual package and case.

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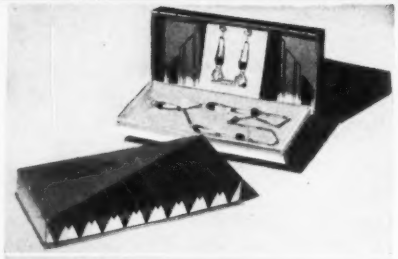
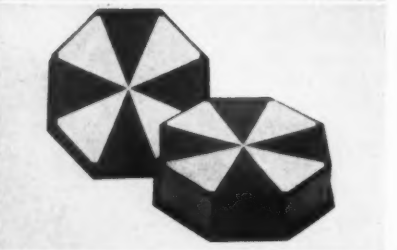
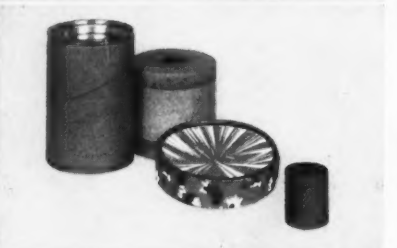
TAKE ADVANTAGE
of our Specialized Packaging Service







We will gladly help you with any of the following problems:

Styling the Package

. . . a mighty important link in present-day merchandising—one of the problems we are solving daily for our customers.

Merchandising with Round Boxes

Dignity and appeal can often be added to products by the proper use of round boxes.

Adapting Present Containers for use in other fields

A dice shaker—a masculine mailing container—examples of adaptation of existing containers into new fields.

Odd-shaped Packages

Research is the answer. We can offer you automatically made boxes as illustrated—and others.

Paper Cans, Metal Tops, etc.

Mailing Tubes, Winding Cores and Special Round Containers.

In addition to the above

. . . our large facilities for regular S. & S. style production are available—a complete container service.

CAMBRIDGE PAPER BOX CO.

196 Broadway, Cambridge, Mass.

NEW YORK OFFICE CHICAGO OFFICE

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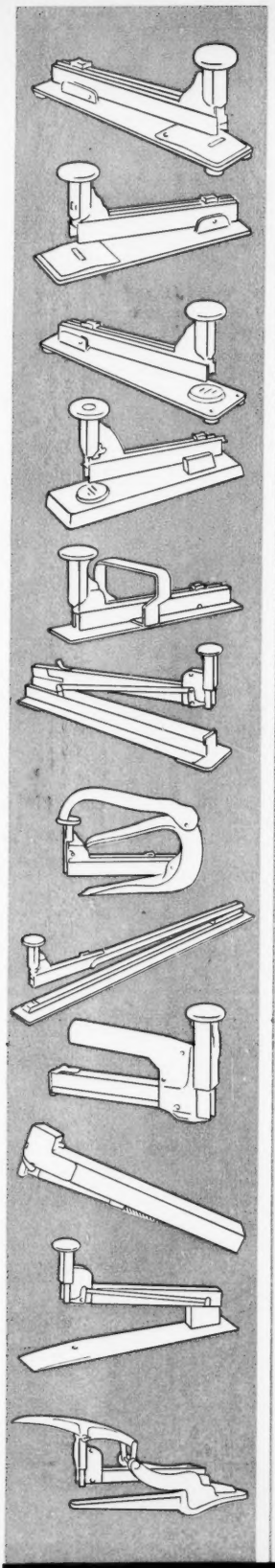


BOSTITCH

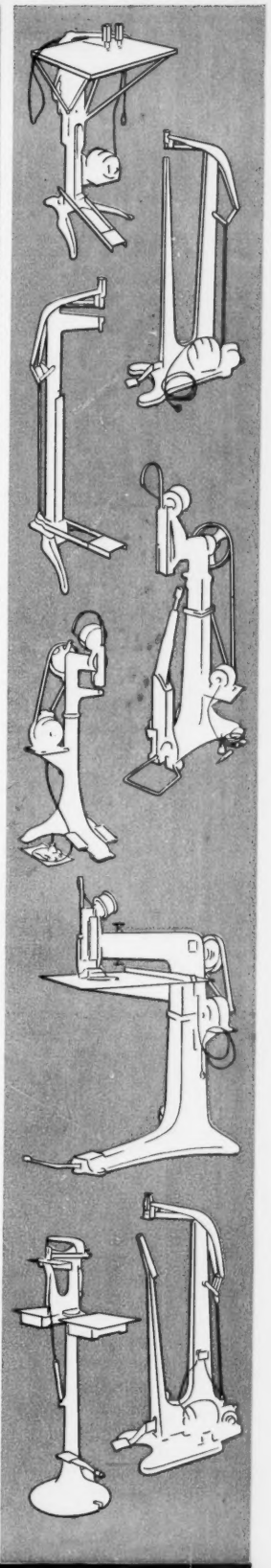
THE MODERN METHOD OF FASTENING

On the accompanying panels and in the pages that follow you will see the many Bostitch machines which with their almost limitless applications and adaptations have simplified the work and built up the profits of thousands of modern firms.

From the light 12-ounce fastener to power stitchers which make their own staples, there is a Bostitch machine for every tacking, fastening, sealing job. Bostitch machines and Bostitch staples are the outgrowth of 30 years of constant study, development and improvement. Specializing in this one field, Bostitch has become the world's largest exclusive manufacturer of staplers, stitchers and fasteners. And the sales and service organization of Bostitch reaches out all over the world with company offices or representatives available for your convenience in nearly every large city.

BOSTITCH
SALES COMPANY
EAST GREENWICH, R. I.

Call the nearest Bostitch office or write to the home office for any information you wish about Bostitch-fastening. If you will outline your packaging problems or send samples of your work, our engineering department will gladly make recommendations without charge.



BOSTITCH · STAPLERS · TACKERS · STITCHERS

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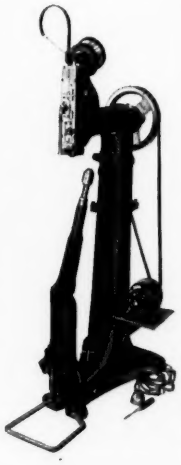
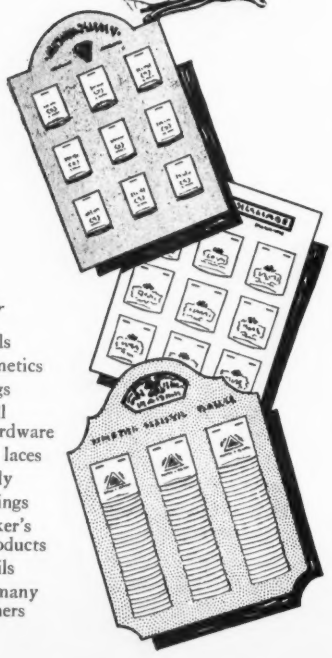
BOSTITCH FASTENERS

The standard type Bostitch fastener B-1, the featherweight champion, the lightest, most economical machine on the market, has thousands of uses in packing, sealing, attaching as well as office work. Used where light materials are to be packed or sealed. (Cut shows bags of potato chips.)



For open display, Bostitch-fasten your product on attractive Counter Cards. Modern merchandising approves of this rapid, effective method.



for

Foods
Cosmetics
Drugs
Small hardware
Shoe laces
Candy
Findings
Smoker's products
Pencils
and many others

BOSTITCH STITCHERS

For large production sealing, bottoming, fastening or tacking Bostitch stitchers automatically form and rapidly drive their own staples.

Simplified control and extreme safety in operation permit great speed with Bostitch Stitchers.

One turn of the crank or handle takes care of every adjustment necessary in changing to different thicknesses of work.

Self-contained detachable head makes machine adaptable to many varieties of work.

BOSTITCH · STAPLERS · TACKERS · STITCHERS

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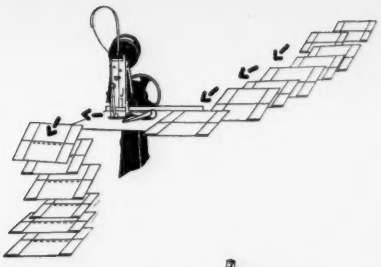
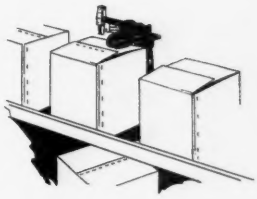
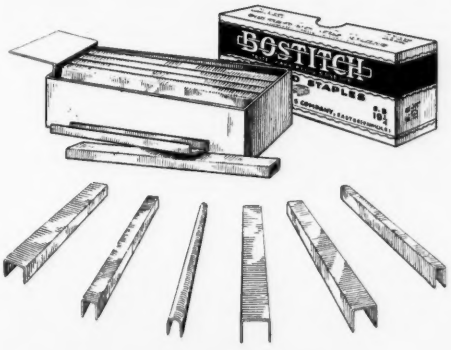




BOSTITCH STAPLERS

Foot power and motor driven Bostitch machines can be adapted to limitless special jobs of fastening or tacking. Of utmost simplicity in construction—operator's hands always free to handle product—with an attendant increase in efficiency and cost saving wherever applied.



BOSTITCH STAPLES

Bostitch staples are made of steel, bronze or monel wire in many sizes by different processes for each distinctive type of work. Attached in strips by the Bostitch process, they hold together firmly in handling and loading, yet detach themselves readily in the machine. Either the crowns or legs can be shaped in stapling operations to form loops for enclosing small items or hooks for attaching them. Their universal acceptance is due to their uniformity and their accurate alignment so vital to uninterrupted and perfect work.

BOSTITCH CONTINUOUS STAPLE FEED

This new and exclusive Bostitch attachment keeps machines running without interruption for reloading, which increases production capacity. It can be attached to any stock Bostitch heavy duty or power machine.

EASE OF OPERATION

Two of the outstanding advantages of Bostitch foot and motor driven machines are ease of operation and the fact that both hands are free to handle the material. Girls can use foot power machines on ordinary work all day without fatigue, or motor power on heavy work.

BOSTITCH BENCH STAPLER

The heavy duty hand operated machine can be firmly attached to the bench for heavy duty stapling such as bag sealing and special box work.

BOSTITCH SALES CO., EAST GREENWICH, R. I.

XUM

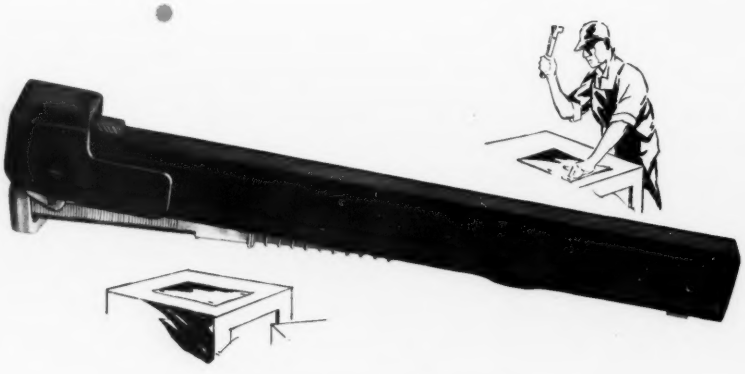
BOSTITCH B-3 FASTENER

Developed to fit the increasing need for silent office operation, the B-3 desk type fastener is insulated at 3 points against noise, vibration and clatter.

The exclusive Bostitch spring platform cushions each stroke, insures a flat clinch, protects papers against tearing. Rubber feet protect the desk or table top, and the rubber knob, the hand.

BOSTITCH STAPLE REMOVER

This new device is one of the most important developments in the industry. Lock-stitch staples can be removed instantly without tearing or damaging the papers. The advantages of classifying papers and lock-stitch fastening them are now combined for the first time with ability to instantly release them.



BOSTITCH HAMMER

This automatic, self-feeding tacker drives a staple in the form of a double-pointed tack with every hammer blow. You can tack as fast as you can move your arm. No tacks in the mouth or hand—just swing the Bostitch Hammer and a tack is driven home—practically two—just where you want it. An unparalleled time and cost saver in the shipping room, in lining freight cars, attaching signs, and a hundred other operations.

BOSTITCH SALES CO., EAST GREENWICH, R. I.

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USE

THE

"HEYWOOD LINE"

OF

BOX WRAPS

FOR

1932

We carry a line of stock wraps for all different occasions, such as: Easter, Mother's Day, Christmas, and Everyday, in popular sizes, and at reasonable prices.

Let us work on your inquiries and solve your packaging problems.

Box Wraps Are Your Silent Salesmen

OUR ART DEPARTMENT IS YOURS TO COMMAND

HEYWOOD'S 1932 CATALOG IS AVAILABLE ON REQUEST

This sample manufactured and created by

R. R. HEYWOOD COMPANY, Inc.

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MR. JOSEPH BROMLEY
914 Drexel Building
Philadelphia, Pa.

Chicago Office:
MR. PAUL PIERSON
565 W. Washington Blvd.
Chicago, Ill.

Toronto Office:
MR. W. P. BENNETT
32 Front St., W.
Toronto 2, Ont., Canada

XUM

CLEVELAND CONTAINER CO.

10421 BEREA ROAD CLEVELAND, O.

PLANTS - CLEVELAND - PHILADELPHIA - DETROIT - HOBOKEN

Sales Offices: CHICAGO - PITTSBURGH

Cleveland Containers include Spiral wound fibre cans—fibre top and bottom—metal top or bottom or both—all sizes—plain or fancy paper covering or wrapped with your own labels—mailing tubes or any round fibre container. Specially designed containers for special purposes.

The sizes of these all-fibre containers range from $\frac{3}{8}$" inside diameter to $7\frac{1}{2}$". They carry your product intact to its destination. They have the sturdy dependability that is a Cleveland characteristic.

Fibre containers for unusual purposes are shown above. To the left is a container for dry-Kold ice ventilated top and bottom. On the right is a hanger box for moth cakes and disinfecting blocks, with metal bottom and clip for hanging.

These were created for special purposes. A cellophane lined can to protect the contents on the left. A multiplying tube that carries pencils and a small fibre container that replaced a heavier, more expensive wooden one.

Talcum, or other materials requiring sifter tops—salt or products that must pour easily, coffee, cocoa, or anything to be spooned from the container—all types of closures can be supplied on Cleveland Containers.

XUM

BAKELITE CORPORATION

247 PARK AVENUE, NEW YORK, N. Y.

BAKELITE CORP. OF CANADA, LTD., 163 Dufferin Street, TORONTO, ONT., CANADA

WORKS AT

BOUND BROOK, N. J.
BLOOMFIELD, N. J.

SALES OFFICES AT

CHICAGO, ILL.
DAYTON, OHIO
ROCHESTER, N. Y.
SPRINGFIELD, MASS.

The registered trade mark symbol shown distinguishes materials manufactured by Bakelite Corporation. Under the capital "B" is the sign for infinity, or unlimited quantity. It symbolizes the infinite number of present and future uses of Bakelite Corporation's products.

Caps and tops of Bakelite Molded

Display device of Bakelite Materials

Bakelite Molded Containers

Bakelite Molded Devices to help you sell your products

Caps and tops of Bakelite Molded

Development of the modern art of packaging demands that a closure serve a double duty. It must thoroughly seal and protect the contents and add to the attractiveness and salability of the product. Because they meet these needs so admirably, it is easily understood why Bakelite Molded closures have been adopted for so many well-packaged, rapid-selling products. These closures contain clean, accurately formed threads, are non-corrodible, possess unusual lustre and beauty and are readily formed into exclusive designs.

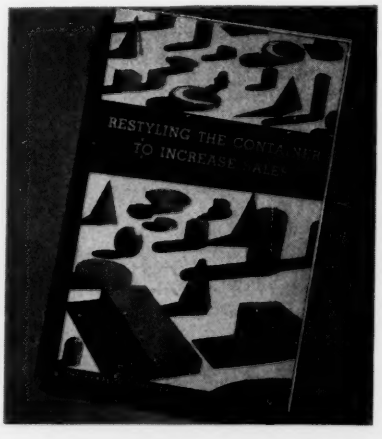
Display devices of Bakelite Materials

High quality contents will win consumer acceptance. Fine modern packages will stimulate the choice of your product. But, unless your product is attractively and prominently displayed, the fickle buyer may pass it by. An interesting solution to this problem is found in the use of Bakelite Molded and Bakelite Laminated for display pieces. Attractively designed, richly colored and durably lustrous displayers made of these materials will make your product stand out like a star performer on the stage and will provide lasting sales aids for your retailers.

Bakelite Molded Containers

A container will either help or hinder sales. For some goods a container of strength is most practical and pleasing, for others, dainty colors and graceful form. In either case the container must effectively seal and protect the contents. Therefore, many prominent manufacturers have found it profitable to adopt modern styled containers, jars, boxes, etc., made entirely of Bakelite Molded. Lustrous and colorful beauty, adaptability to fine design, and secure protection against spoilage of contents as well as long and useful "after-life" admirably suit the material to this use.

Write for Booklet T, "Restyling the Container to Increase Sales." Whether your product is packaged in tubes, bottles, jars or boxes, you will find this booklet helpful. Do not hesitate to call on us for information and assistance in adapting Bakelite Materials to any of your products.



XUM

THE CINCINNATI MAILING DEVICE CO.

Fibre Can and Tube Specialists Since 1902

295 Eggleston Ave. **Cincinnati, Ohio**

Representatives in the following cities:

NEW YORK CITY
148 W. 23rd St.
Watkins—9
1946–7339

BOSTON
79 Sudbury St.
Haymarket 6083–6084

BALTIMORE
415 W. Camden St.
Plaza 3478–3479

CLEVELAND
5005 Euclid Ave.
Henderson 6510

DETROIT
7–152 General Motors Bldg.
Madison 9790

RACINE, WIS.
511 16th St.
Jackson 4721

ATLANTA
165–7 Forsyth St., S.W.
Main 2268

MEMPHIS
A. W. Sears Co.
721 S. Highland

TAMPA, FLA.
Room 5, Hampton Bldg.
Phone—3376

BIRMINGHAM, ALA.
517 Lyric Bldg.
Phone—3–6820

NEW ORLEANS
1124 Aline St.
Jackson 4849-J

FT. WORTH
507 Burk Burnett Bldg.
Phone—2–2848

SAN ANTONIO
1722 W. Craig Place
Phone—W. 7724–1877

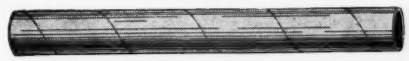
KANSAS CITY, MO.
1125 Park Ave.
Chestnut 1126

OKLAHOMA CITY
213 N. W. 35th St.
Phone 4–6394

SAN FRANCISCO
7 Front St.
Sutter 8854

SALT LAKE CITY, 1274 Laird Ave., Hyland 1343W

5-TP



Type CT

Type CTC

MMC

PRODUCTS:

We specialize in the manufacture of CIN-MADE Fibre Cans and Tubes for packaging, winding, mailing and protection. They are made in a wide variety of styles, sizes and colors, with either tin or paper ends, plain or labeled.

NNL

5-TX

NEW PACKAGES DESIGNED:

Let us show you how you can pack your product more economically. We will gladly cooperate with you in designing a new container. Our knowledge of packaging, all the mailing and shipping rules and regulations enables us to design a package for you that will be absolutely correct and meet all requirements.

10-T

NN

NATION-WIDE SERVICE:

Get in touch with our representative (see list above) or write us direct and your packaging problem will have our immediate attention, of course without cost or obligation.

1

1-NS

2-T

SC

1-PO

5-T

XUM

CHASE

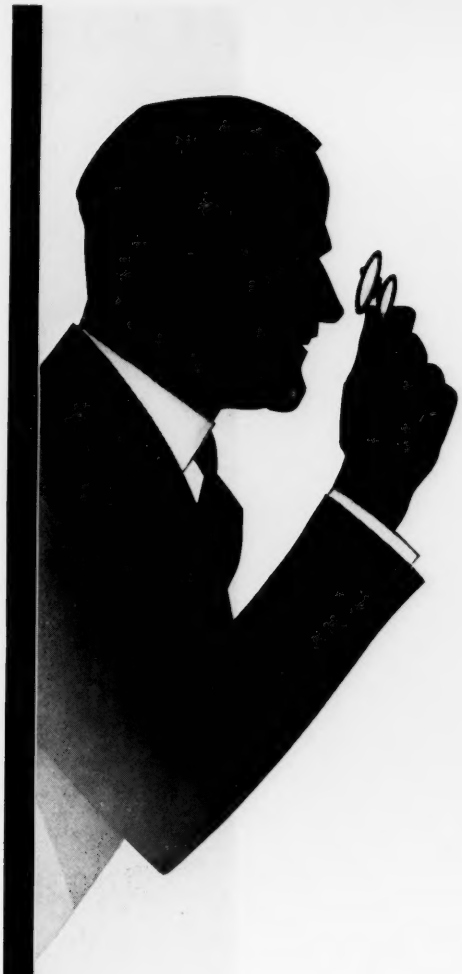
An array of metal products made resplendent and appealingly feminine by the use of new, "Jewel Glow" finishes — soft satin effects — brilliant polished tones. Let us suggest packaging ideas for you on jar closures, powder box tops, dusting powder boxes, rouge boxes, talcum powder containers, compacts, etc.

CONSOLIDATED SAFETY PIN COMPANY

BLOOMFIELD, NEW JERSEY

Owned by the makers of Chase Brass

NEW YORK SHOWROOMS: 200 FIFTH AVENUE



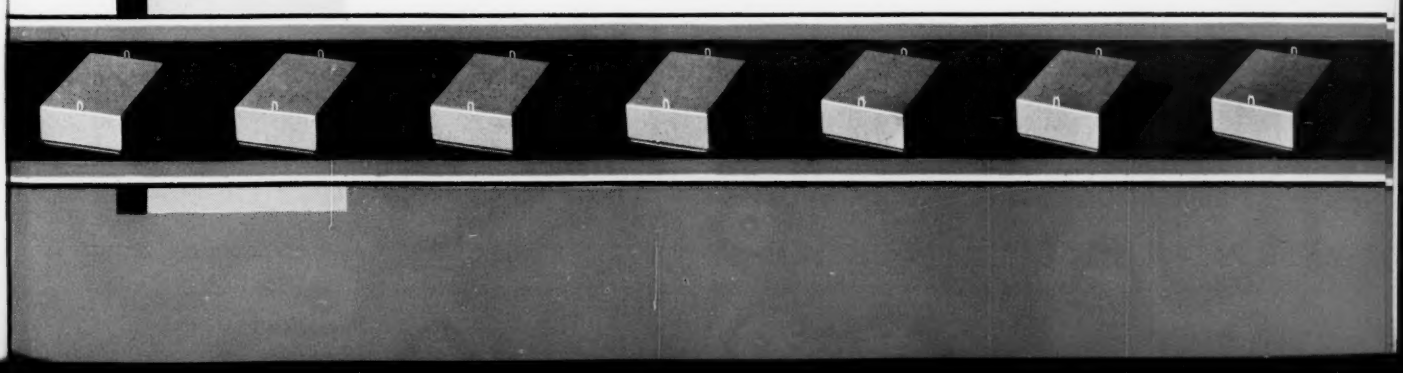
Become Acquainted with the Complete MASON LINE

THE United States Mails will carry most products that can be shipped within the limits of size and weight, provided they are properly packed as prescribed by Postal Regulations. Therefore, a complete line of containers is necessary to cover the range of individual needs and classes of mail.

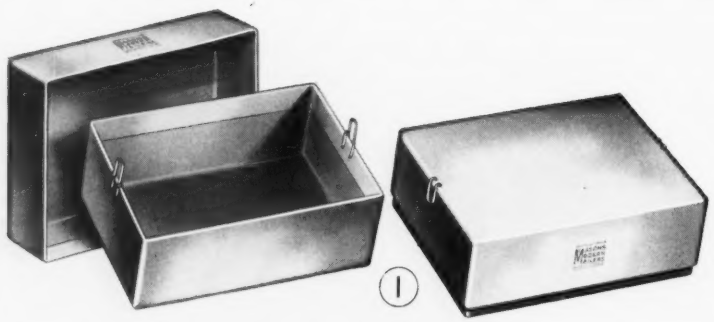
For 40 years, The Mason Box Company has specialized in the manufacture of mailing containers both distinctive and exclusive. During that time it has worked in conjunction with the Post Office Department and with its full co-operation and support.

Pictured on the following pages, are the various stock items carried for your convenience. Our greatest service, however, often lies in designing boxes to meet individual needs. Whatever the product, if it can be mailed, we can provide a Mason Mailer for it. Samples will be gladly supplied and recommendations offered without incurring any obligation, or our latest catalogue will be sent upon request.

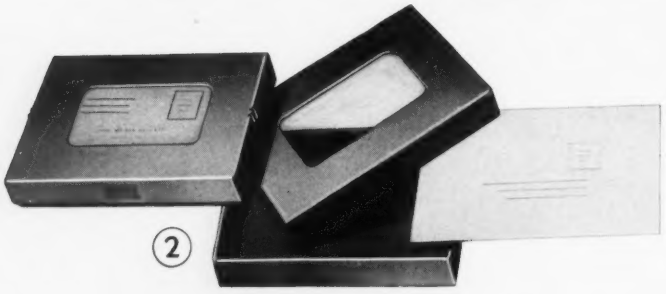
THE MASON BOX COMPANY
Attleboro Falls, Mass.
Providence, R. I. New York, N. Y.



MASON MODERN MAILERS . . .



1.—Parcel Post Box for all unsealed mail.



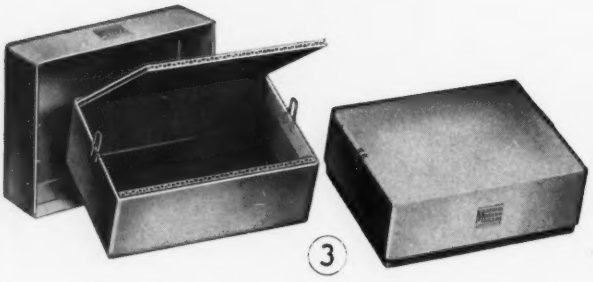
2.—Returnable Box for memorandum or returnable shipments.

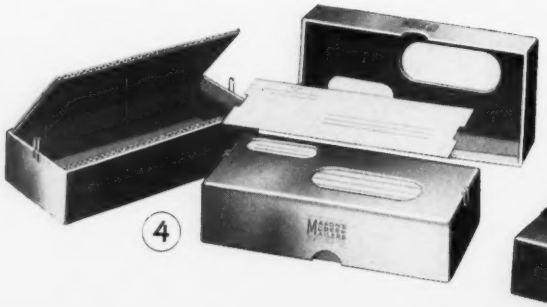
3.—No Break Box with inner corrugated lining for fragile goods.

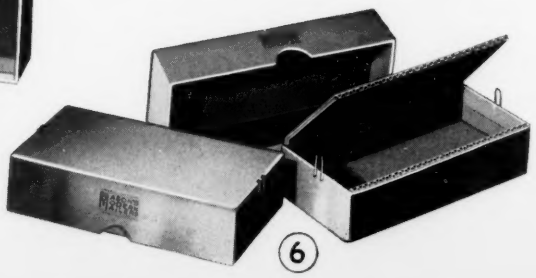
4.—Kum-Bak Box made especially for optometrists and opticians.

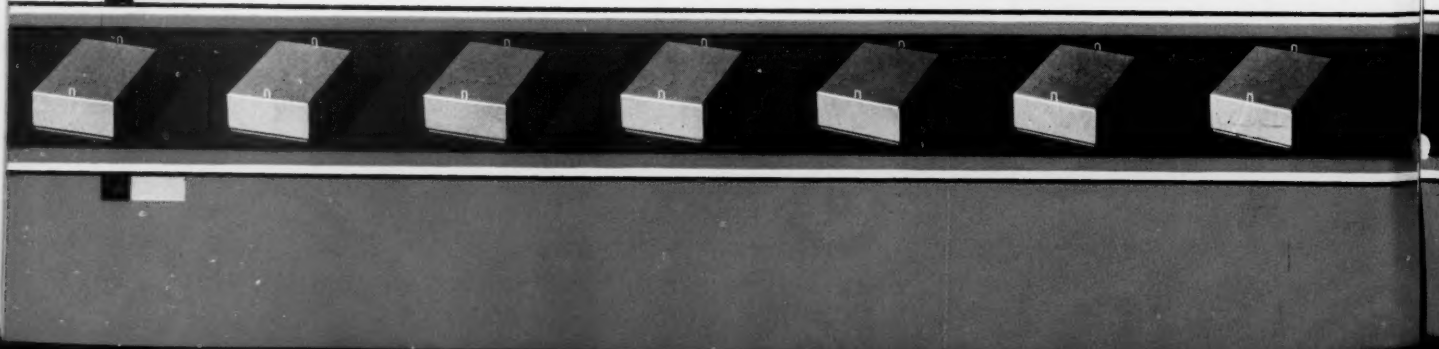
5.—Rigid Mailer with or without letter compartment for articles that must be shipped flat.

6.—No Break Optical Box for optical shipments.









. . . . . The Standard for Postal Shipments

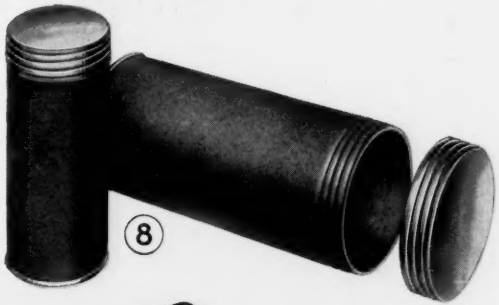
7.—Letter Box, a two compartment container which allows a first class letter and second, third or fourth class matter to be mailed together.

8.—Screw Cap Container for mailing liquids. An improved type.

9.—Flap Box made in several styles for all classes of sealed mail.

10.—Air Mail Box, an up to the minute container.

7



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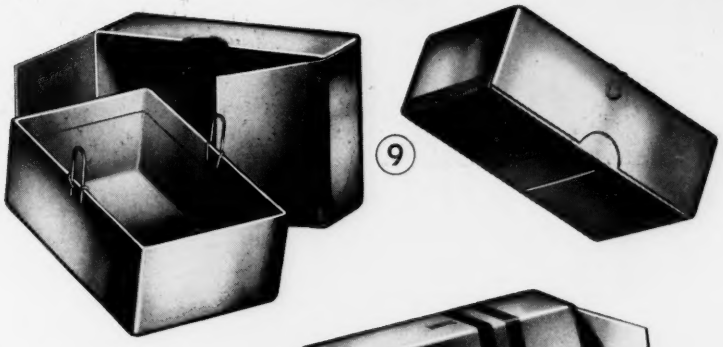

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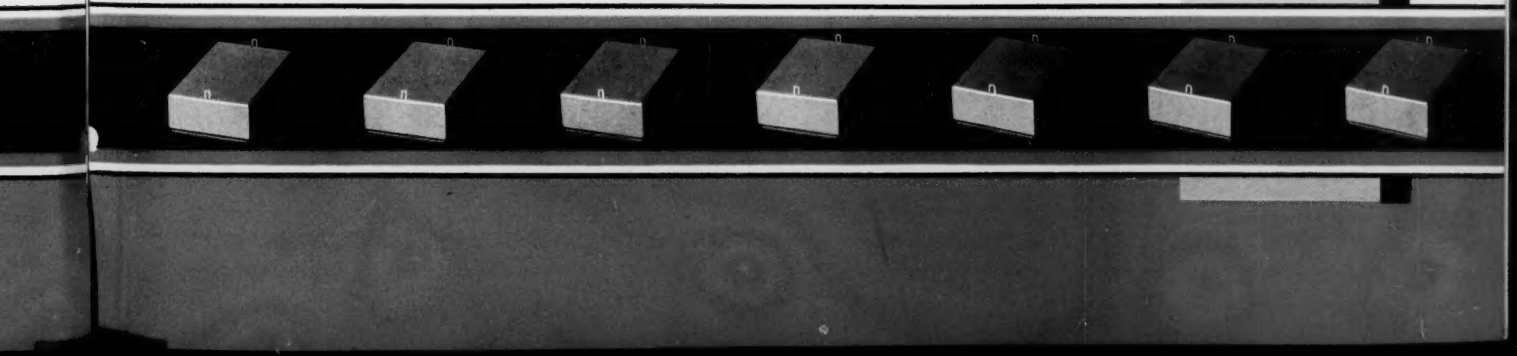

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...and Fancy Boxes, too!

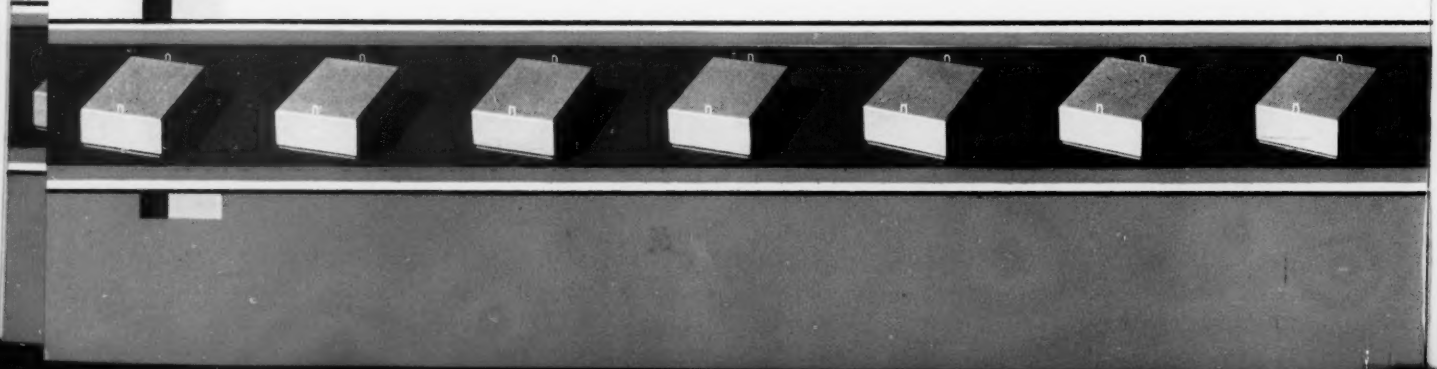
THE reputation enjoyed by The Mason Box Company, as the largest manufacturers of Mailing Containers, sometimes obscures the fact that many of the outstanding fancy boxes are the product of the same factories.

Perhaps no organization in the country is better equipped with diversified talent and machinery to produce new and distinctively different fancy boxes. Your boxing problem in our hands is not confined to the medium of any one type of material, as our facilities cover the full range of cardboard, metal, wood, leather and moulded boxes.

Above are pictured two containers in a new treatment which have done a good job in helping to sell the merchandise they contain. We believe we can solve your packaging problem and invite your inquiries.

THE MASON BOX COMPANY
Attleboro Falls, Mass.

Providence, R. I. New York, N. Y.



XUM

ARTHUR COLTON COMPANY

DETROIT, MICHIGAN

GENERAL OFFICES: 2600 East Jefferson Avenue

PLANTS
2600-2628 East Jefferson Avenue
300-388 Chene Street
2601-2629 Franklin Street

Designers and Builders of:

Pill, Tablet, Globule and Suppository Making Machines

Collapsible Tube Filling, Closing and Clipping Machinery

Tablet and Pill Counting and Boxing Machinery, Can, Jar and Bottle Filling Machines

Tube Clips

Candy Mint Wrapping and Labelling Machines

Special Machinery to order

The illustration and descriptive matter below refer to the latest development in Collapsible Tube handling:

THE COLTON CLOSURE:

A new method of sealing a collapsible tube, eliminating the clip entirely and giving a more decorative appearance with greater security to the contents.

It is completely formed on these new Colton Tube Fillers and Closers by making the two usual double folds, making a third fold in the reverse direction, and then securing and giving more rigidity to the folds by corrugating the folded end. Both sides of the tube have exactly the same appearance on the folded end.

Adoption of the Colton Closure is an investment which pays you dividends immediately, through saving in time, labor and material.

No more clips to buy.
No clip stock to carry.
No clip wastage.
No clip corrosion.
No stops to replenish clip rolls.
No maintenance expense on automatic clipping heads.
Continuous production.
Reduced overhead.
Better appearance.
Added security to the tube contents.

AUTOMATIC POWER-OPERATED MACHINES:

We offer a complete line of automatic power-operated machines for producing the Colton Closure at speeds from 40 to 120 tubes per minute.

No. 17—Automatic Machine handles tubes up to 1½" x 7". It will fill materials in semi-fluid and paste form cleanly, uniformly, and no wiping of the tubes is required. After filling, the tubes automatically pass to the folding and crimping jaws where the closure is completed. The tubes are then automatically ejected onto the conveyor shown. The conveyor is adjustable to suit the height of finishing tables or cartoning machine feeds.

The machine is easily adjustable from one size tube to another by changing tube holders, nozzle, etc., to suit tube diameter and length.

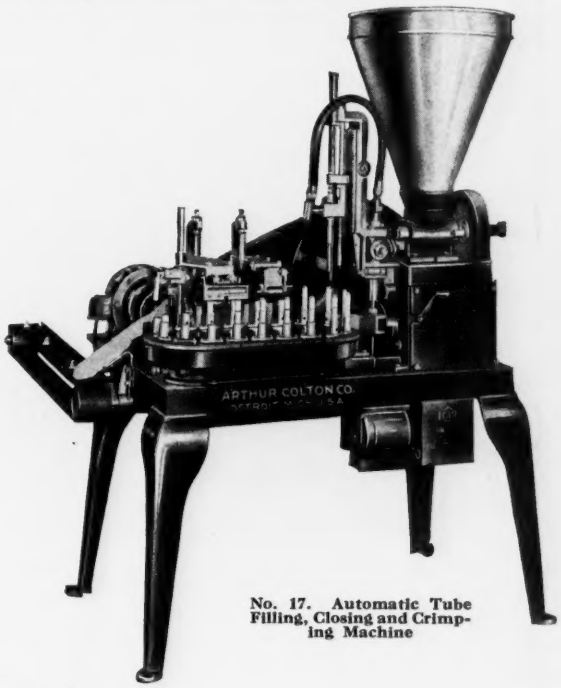
This machine is furnished complete with motor equipment.

No. 18—Automatic Closer and Crimper—Same as No. 17 but without filling unit. This machine is recommended where frequent change from one material to another is necessary. Tubes can be filled on separate fillers and the Colton Closure completed on this machine.

No. 19—Automatic—Same as No. 17 except that a filling unit suitable for fluids is furnished.

No. 7—Automatic—A larger machine than No. 17, handling 50 to 60 tubes per minute, filling, folding and crimping two at a time.

No. 16—Automatic—For large production only. Fills, folds, crimps and ejects four tubes at a time. Capacity from 75 to 120 tubes per minute.



No. 17. Automatic Tube Filling, Closing and Crimping Machine

SPECIFICATIONS:

Capacity per minute	40–50 tubes
Power required	¾ H. P.
Floor space	52 in. x 32 in.
Net weight	(Approx.) 1270 lbs.
Gross weight	(Approx.) 1480 lbs.
Boxed for export	(Approx.) 50 x 36 x 60 in.

We are the largest makers of Pharmaceutical Machinery and Tube Filling and Closing Equipment in the world. Our line embraces over two hundred machines designed to facilitate the making and packing of practically all medicinal products and toilet goods. We also design and build all kinds of special purpose machines.

Write for Catalog "P."

Durez for all for boxes

The limitations of the average closure are well known to those who use them. There is difficulty in accurate threading; the cap binds on resealing; destructive agents may affect the inside of the seal; colors are restricted; and production machinery is often expensive. Because of these defects, many packers have turned to Durez molded closures for capping collapsible tubes, bottles, jars and boxes.

Durez molding compound

Durez molding compound is a synthetic phenolic resinoid product, molded under heat and pressure into the shape of the desired product. The manufacturers do not perform the actual molding, but supply the raw material in a powdered form to custom molders and others equipped to make it into finished closures.

Advantages of Durez closures

Durez closures are strong, tough, and hard, yet light in weight. They are not affected by acids, alkalines or other destructive agents, making cork inserts unnecessary. They do not rust or corrode, nor discolor the contents of the container. Nor will they leak.

Threading

Durez closures grip easily, screw down tight, yet they will not bind. The answer lies in the threading. Durez threads are stronger than alloy metals because they are molded, not cut. Any size or kind of thread may be used—inside or outside, fine or bayonet. Extreme accuracy is assured whether you make ten or a million closures.

Beautiful finish and colors

Durez closures have a permanent natural lustre that requires no polishing or buffing. Twenty colors are available, including reds, greens, orange, several blues, old ivory, magenta, purple, black, brown, etc. A wide range of mottled and striated effects can be secured by blending standard colors.

Some famous Durez users

E. R. Squibb & Sons, Auto-Strop Razor, Johnson & Johnson, Pinaud, Palmolive, Parke-Davis, Barbasol, Fitch, Astringosol, Zonite, Lambert Pharmaceutical Company, Nelson,

GENERAL PLASTICS,

Plant and Executive Offices: Walck

Sales Offices:

NEW YORK: 250 Park Avenue
CHICAGO: 9 So. Clinton St.
LOS ANGELES SAN FRANCISCO

Durez is used

XUM

kinds of closures

trays, containers...

Baker, Hinds, Lehn & Fink, McKesson-Robbins, Colgate—these are but a few of the many nationally known users of Durez closures.

Any manufacturer with half an eye on modern trends can see that packages are not what they used to be. Gingerbread styles have gone. Trick lettering, cluttered-up labels, dull and ugly patterns—these are fast making room for simplicity of design, and fresh clean colors... And in a surprising number of instances, Durez packages are leading the way.

Perhaps the best tribute to Durez as a new-age packaging material is this: that many concerns who first discovered it as ideal for closures are now using Durez for all kinds of trays, jars and containers!

Wide range of applications

Durez is suited to the manufacture of cake and candy boxes, children's lunch boxes, boxes for bridge cards. It has a place in the manufacture of jars for facial creams, for powder boxes, for display cases of varying sizes and shapes, for watch and jewel cases, for safety razor containers, cigarette boxes, humidors, serving trays, cups, dishes, stands, and literally scores of other similar products.

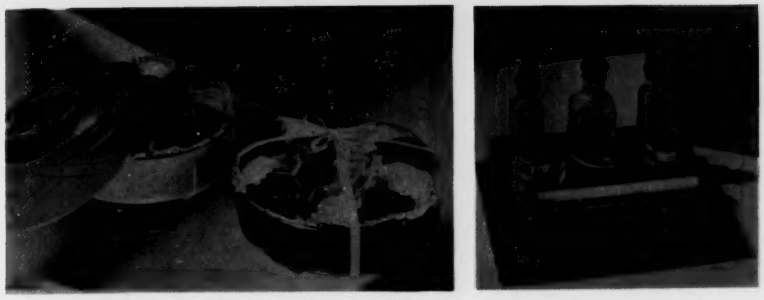
One of the finest features of Durez—aside from its strength, beauty, and uniformity—is the fact that manufacturers may have their own individual designs, seals, or trade-marks, molded right on the container. This pattern will be sharp and legible; this material lends itself admirably to all types of design, even those commonly considered difficult.

How to adapt Durez to your needs

Whether you are interested in Durez for closures or any type of packages, we will be glad to lay the facts about its many advantages before you. First, we will send samples of other work similar to yours. Our staff of specialists, trained in thousands of such cases, will point out how Durez may be especially adapted to your needs. And we will establish and help maintain relations between your house and the custom molder.

General Plastics, Inc., welcomes all inquiries, and will answer them promptly. If you would like more complete information abour any phase of the use of Durez, simply drop a note to the home office at North Tonawanda, New York, or to any other address below.

INCORPORATED
Road, North Tonawanda, New York
European Sales Office:
GASTON E. MARBAIX
Adelaide House, King William St.
London, E. C. 4, England



Ninety-five per cent of all molded closures are made of Durez

to-day on ninety-five percent of all molded closures

XUM

CONTAINER CORPORATION of AMERICA

America's Most Complete Packaging Service

Solid Fibre Containers
Corrugated Shipping Cases
Folding Cartons and Displays
Retail Delivery Boxes
Paper Boxboards
Paper Pails

12 Box Factories—7 Paper Mills

CONTAINER CORPORATION OF AMERICA

111 W. Washington Street
Chicago, Illinois

5500 Eastern Avenue
Cincinnati, Ohio

1700 Sansom Street
Philadelphia, Pa.

350 Madison Avenue
New York City

PACK YOUR PRODUCTS IN

HYCOLOID

modern CONTAINERS

UNBREAKABLE **TRANSPARENT OR OPAQUE**

VIALS—COLLAPSIBLE TUBES—BOTTLES—JARS

MADE IN LUSTROUS
COLORS AND TINTS
ARTISTICALLY LABELED
IN PRODUCTION

Feather-weight
(80 per cent lighter than glass)

ODORLESS
SEAMLESS
MOISTURE-PROOF
SANITARY

GREATER SALES APPEAL—There is a distinctive depth of color in Hycoloids giving a charm that cannot be found in ordinary glass or metal containers.

PRODUCT PROTECTION—Hycoloids defy substitution or imitation; they **identify** your product.

ECONOMICAL—Being unbreakable and feather-weight, Hycoloids require less protective packing, eliminate breakage in transportation and reduce mailing or shipping costs.

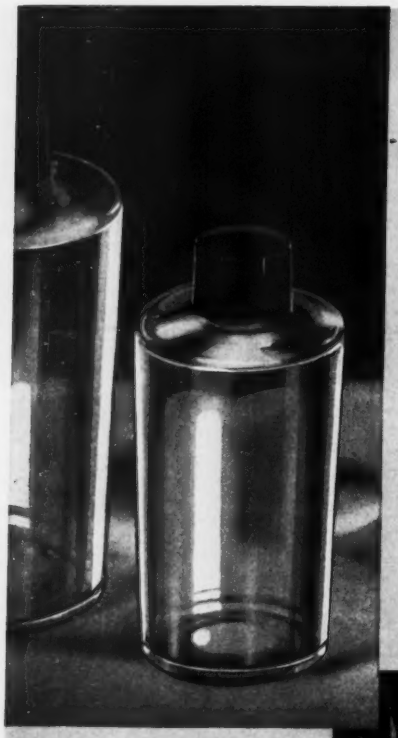
Send us a sample of your product

We will return contents, packed in unbreakable, attractive Hycoloid—in your desired color, for your information and comparison.

HYGIENIC TUBE & CONTAINER CO.

32 Avenue "L" **Newark, N. J.**

XUM

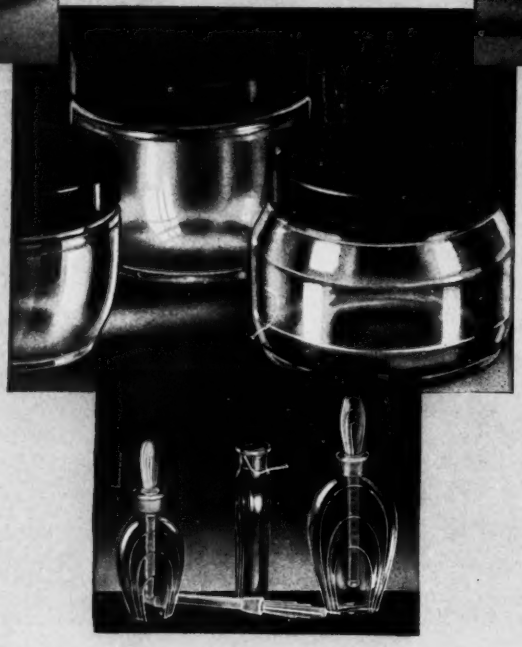


A complete glass container service

•

The modern trend is well carried out in the design of these bottles.

Our stocks include a wide variety of attractive jars in a full range of sizes.



The Imperial Oblong—available in ten sizes—from one-half ounce to thirty-two ounces.

The smart hand-blown flaconettes below add prestige to any perfume.

Whatever your packaging needs may be, there is an attractive container among our stocks which will offer the proper solution to your problem. And we mean by that—a complete solution, such as can be provided only by the wide range of facilities offered by Owens-Illinois.

From the bottle or jar itself to the details of packing and designing the shipping carton, Owens-Illinois offers a complete packaging service aimed constantly at the target of increased sales for your product. Owens-Illinois Glass Company, Toledo, Ohio.

OWENS-ILLINOIS

BOTTLES AND GLASS CONTAINERS

MOLDED

· PULPAK ·

Pulpak is available in a variety of attractive colors

Reduces breakage . . .

cuts packing costs!

This illustration shows how one molded Pulpak unit serves as a convenient consumer package for the bottles packed in it—in this case, beverage bottles.

Molded Pulpak is an entirely new method of packing glass containers. Its use results in less breakage, less cost and less time wasted than any other method now used. As can be seen from the illustrations, each molded Pulpak unit serves as a convenient package for the bottles it contains. Made entirely of fine spruce fibres, molded Pulpak is lighter in weight, less bulky, less costly than any other material affording similar protection. We shall be glad to furnish samples of molded Pulpak, as well as suggestions for complete packing units involving the use of Pulpak for your particular product.

OWENS-ILLINOIS

GLASS COMPANY, TOLEDO, OHIO

XUM

ECONOMIC MACHINERY COMPANY

Manufacturers of WORLD LABELERS

WORCESTER, MASS.

CHICAGO: Napoleon Savaria, 410 Monadnock Bldg. NEW YORK: 15 Park Row MONTREAL: Golden Gate Mfg. Co., Ltd.

PRODUCTS

Machines for Applying Paper Labels and Foils on Bottles, Jars, Tumblers, Cans and certain styles of Paper Boxes and Cartons.

Economic Machinery Company has been engaged exclusively in the manufacture of labeling machines for more than twenty-five years.

Superior mechanical construction combined with the best of materials and skilled workmanship makes World Labelers the most satisfactory and durable machines obtainable. A staff of factory-trained men gives expert advice on labeling problems. Thousands of satisfied customers heartily endorse Economic service.

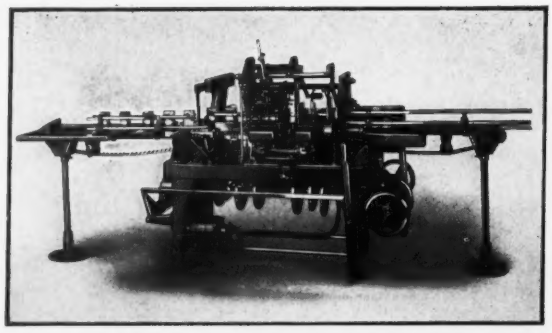
The Company manufactures a complete line of hand-fed and automatic machines to meet all labeling requirements successfully and economically.

Every World Labeler is guaranteed to give satisfaction.

Write for advice regarding your labels, and send labeled samples of your bottles or packages showing the way you want them labeled on the machine. Detailed information and quotation will be sent to you promptly.

Let World Labelers solve your labeling problems.

WORLD AUTOMATIC STRAIGHTAWAY LABELER



The *World Automatic Straightaway Labeler* is fully automatic and is made in two types, the *Single* for face labeling (as illustrated) and the *Double* labeler for applying front and back labels in one operation. It is particularly designed for labeling flat, round, oval or panel bottles and jars and other packages, and various sizes of bottles can be handled on the same machine.

Due to its simple, yet durable construction, operating parts are readily accessible and an experienced operator can easily and quickly change the labeling attachments from one size to another. The bottles are labeled in an upright position, automatically timed and centered and each label is correctly placed. The labels are gummed in the center as well as on the edges insuring uniform and smooth labeling. The conveyor can be made to individual requirements and connected to other automatic units.

All machines are equipped with the Alemite Push Type High Pressure Lubricating System.

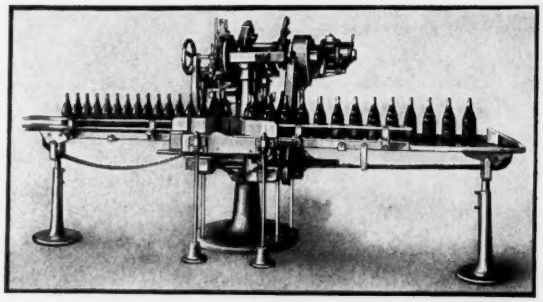
General specifications:—Motor, ½ H.P. Floor space required, 3 ft. x 10 ft. Height, 4½ ft. Shipping weight, 1600 lbs. single, 1850 lbs. double.

WORLD AUTOMATIC ROTARY LABELER

The *World Automatic Rotary Labeler*—the latest development—made both right and left hand, is an outstanding success on the high production required in large plants. The conveyor can be designed as desired and connected with other automatic units. Separate conveyors with independent motor drive are furnished as required.

The machine applies *body and neck labels and foil in one operation to pint, split or quart bottles.* A special machine is required when quart bottles are to be foiled. The Rotary labeler is made for labeling bottles or jars of various types from two-ounce to one-quart size, and several sizes can be labeled on the same machine.

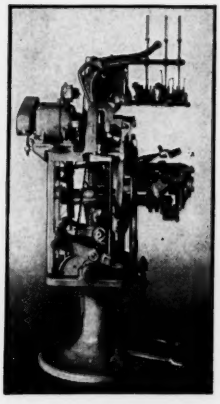
One of the many outstanding advantages of the World Automatic Rotary Labeler is that all parts are easily accessible. These machines are so well built that many of them are now in satisfactory operation after constant daily use over a period of many years. World Automatic Rotary Labeler positively reduces labeling costs to the minimum.



All machines are equipped with the Alemite Push Type High Pressure Lubricating System.

General specifications:—Motor, 1 H.P. Floor space occupied, 4 ft. x 12 ft. Height, 6 ft. Conveyor, 12 ft. overall. Shipping weight machine, 2200 lbs. Standard conveyor, 900 lbs.

MODEL S IMPROVED WORLD LABELER



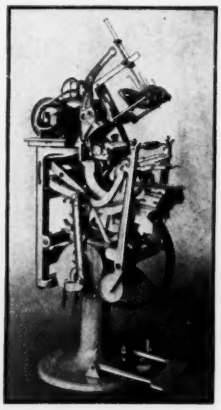
The *Model S Improved World Labeler* is a most efficient and economical semi-automatic machine. It can be equipped to label small vials, one gallon bottles or jugs, or boxes and packages of various shapes and sizes. It is very generally used for applying *body and neck labels and foil in one operation*, to all types of beverage bottles. A positive *center* gumming device can be furnished when required. It applies labels all around a bottle or jar and is practically a universal labeling machine.

The *Model S Improved* machine has many new and exclusive mechanical features, recently developed. Among these improvements are the *silent* adjustable motor drive, the roller chain with cut sprockets for driving the gum roll, the redesigned follower lips which check the upward pressure of the labels when the pickers are in contact, swinging label follower rod enabling the operator to easily place the labels in the holder, quickly removable transfer roll and an improved type of gum box.

All machines are equipped with the Alemite Push Type High Pressure Lubricating System.

Roller truck, to make the machine readily portable, supplied at small extra cost.

General specifications:—Motor, ½ H.P. Floor space occupied, 3½ ft. x 3½ ft. Height, 5½ ft. Shipping weight, 950 lbs.



JUNIOR WORLD LABELER

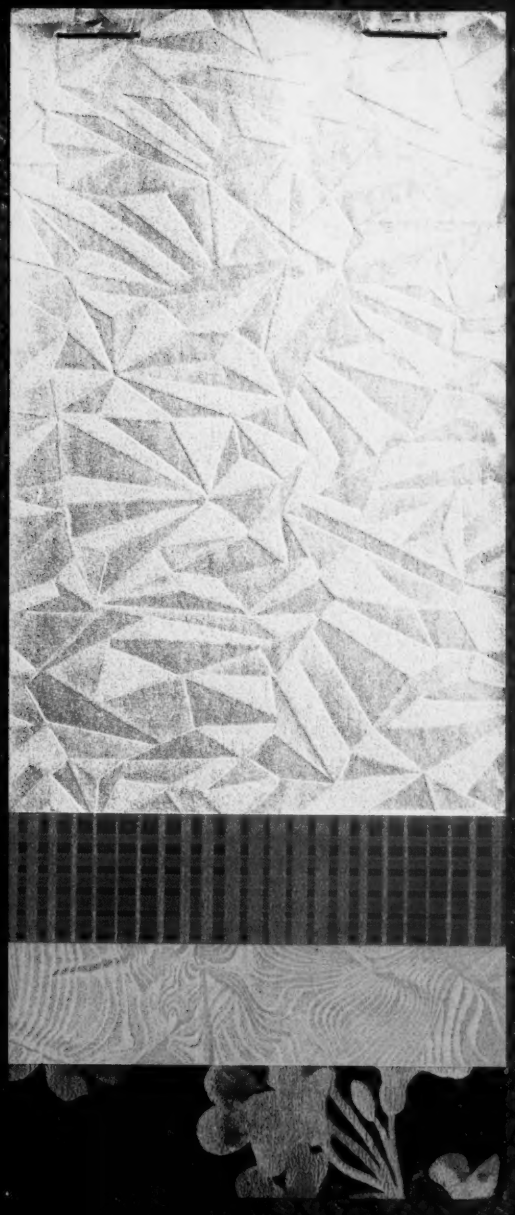
The *Junior World Labeler* is a hand-fed machine designed for labeling where *body labels only* are applied.

It satisfactorily labels bottles from one ounce to one quart capacity. Even in small plants where it is used as a part-time equipment it reduces labeling costs over hand labeling and does a neater, smoother job. The machine is so simple that practically no experience is required to operate it and with proper care, it will last for years.

All machines are equipped with the Alemite Push Type High Pressure Lubricating System.

Roller truck, to make the machine readily portable, supplied at small extra cost.

General specifications:—Motor, ¼ H.P. Floor space required, 3 ft. x 3 ft. Height, 4½ ft. Shipping weight, 650 lbs.



H. R. BLISS COMPANY, Inc.

Manufacturers of Wire Stitching and Adhesive Sealing Machinery for Fibre Containers of Every Description

NIAGARA FALLS, N. Y.

50 Church St., New York
% Harry W. Brintnall Co., San Francisco, Cal.

Transportation Bldg., Chicago
% James Q. Leavitt Co., Ogden, Utah

PRODUCTS:

Box Stitchers, plain and automatic, for assembly of all types of paper boxes; Bottom, Top, and Combination Stitchers for assembly and sealing of solid fibre and corrugated shipping containers; plain and automatic equipment for stitching the manufacturer's seam on regular slotted containers; Corner Stay Stitchers; Cracker Caddy Sealing Stitchers; Bumper Case Stitchers; Portable Stitchers; Special Stitchers for Stockinettes, Candy, and Wood Fibreboard assembly; Stitchers for strengthening can cases; Adhesive Sealing Machines, both automatic and plain compression types; Special Equipment for assembly and sealing of Bliss Boxes; Flange Benders; Staple Removers; and Special Wire Stitching Equipment for processing and handling of various products.

BLISS STITCHERS:

Bliss Stitchers are made of the best and most durable materials, and are positively guaranteed for one year in respect of any defects in materials or workmanship. The stitcher head is made with interchangeable parts for driving any size of wire—bookbinders', HyBar, ribbon, or special round or flat. Quick adjustments are provided for changing the length of wire drawn for varying thicknesses of stock to be stitched. Machines may be equipped to drive stitches from $^1/_4$" to $1^1/_8$" wide, but standard widths are $^5/_{16}$", $^3/_8$", and $^7/_{16}$" crown.

All Bliss Stitching Machines (except Portables) employ the Bliss (Patented) Stitcher Head shown in partial assembly in Fig. 1. All moving parts are made of steel, hardened when necessary. The cam is of special construction which permits extremely rapid operation. Former slides work on long bearing surfaces. Knives are specially hardened and can be re-ground many times. A special sharp stitch cutting block may be had to give a pointed stitch for use with corrugated board. The entire head may be quickly taken off for repair or replacement by removing three screws only, thus reducing the time necessary for repairs to a minimum.

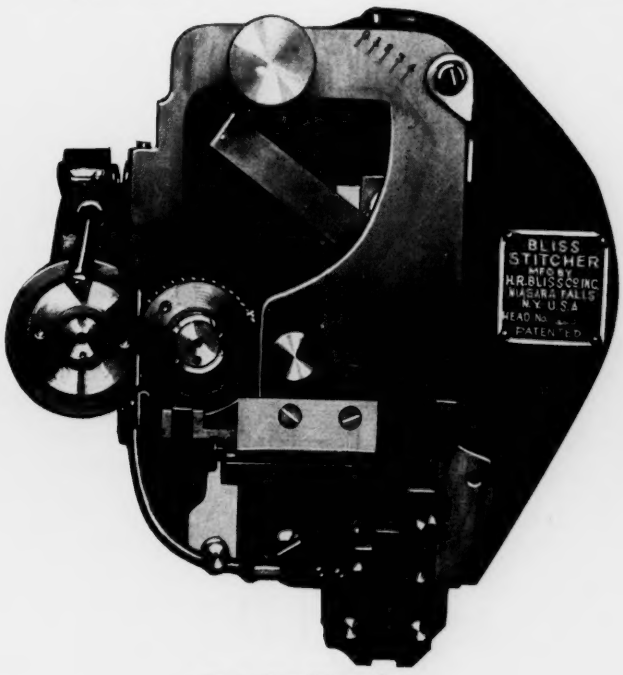


Fig. 1.—Bliss Stitcher Head

The speed of the machine may be varied to suit the nature of the work by changing the motor pinion. The Bliss Stitcher head will form and drive as many as 500 staples per minute, the only limitation on the speed of operation being the ability of the operator to handle the stock through the machine.

All Bliss Stitchers have multiple disc clutches of the automobile type, which permits starting and stopping without vibration. Fig. 2 shows the usual type of foot pedal construction, but for special work this part may be extended to the front or

SPECIAL EQUIPMENT AND ENGINEERING SERVICE:

Bliss Engineers have had long experience in the design and construction of special stitching equipment for the manufacture, assembly and sealing of all types of paper and fibreboard containers. The H. R. Bliss Company makes a specialty of building up automatic equipment for the box industry and also for the processing and fabrication of a wide variety of industrial materials which involve wire stitching. Inquiries for this type of service will receive prompt attention.

BLISS BOX STITCHERS:

Bliss Box (or rigid arm) Stitchers are made with throats 15", 25", and 33" in length. The end of the arm contains the hardened steel clincher and may be quickly adjusted up or down for varying thicknesses of stock. All Bliss Stitchers are equipped with motor of any desired electrical specification. The drive consists of a fibre pinion and iron gear reducing noise to a minimum.

Fig. 2.—Bliss Box Stitcher

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side or may be brought through the side of the pedestal to permit the operator to sit close to the machine.

Many hundreds of standard Bliss Box Stitchers are in daily use for the assembly of paper cartons, suit boxes, telescope shipping cases, candy and hardware boxes, and other types of set-up boxes. They are also used for stitching many special products such as paper

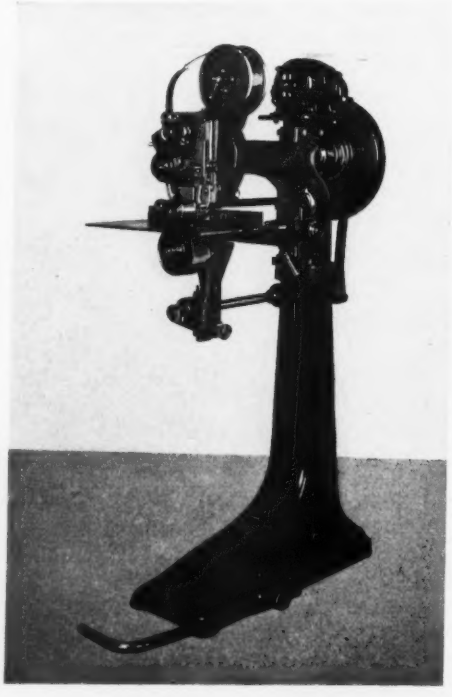

Fig. 3.—Bliss Box Stitcher (Automatic Feed)

bags, bag handles, leather goods, trunks and suit cases, plywood and veneer boxes, stick candies, paper novelties, etc.

Special Box Stitchers (see Fig. 3) are made to order equipped with automatic and semi-automatic feeding and spacing devices, special work tables with gauges, novel shapes and widths of stitch, stitches at 45° or 90° to the arm; also extra long throat machines (up to 48″). They are also obtainable with angle arms for handling extra large boxes, or with folding arm and post attachment for bottom stitching. The latter combination is much used in plants having both Bliss Boxes and regular slotted cartons.

BLISS BOTTOM STITCHER:

Bliss Bottom Stitchers are used for stapling the bottoms of regular slotted containers, assembling the bottoms of Bliss Collapsible Boxes, and many other purposes. The post can be moved forward by means of a foot lever when large boxes are being placed in position, but for small or medium size boxes, the extra clearance between the head of the post and the stitcher head (peculiar to Bliss) usually makes this operation unnecessary. The head of the post (containing the clincher) can be moved up or down instantly with a few turns of the wrist, no wrench being required. The post contains a heavy spring which permits the clincher to move down when extra thick stock is being stitched. The post will not get out of position in use; and is quickly adjustable in any direction to center the clincher under the stitching head without moving the latter.

Fig. 4.—Bliss Bottom Stitcher

This machine is made with 15″ and 25″ throats and in standard heights of 45″ and 50″. The machine is usually set to drive 300 staples per minute and it is not unusual for an operator to bottom stitch 500 or more containers per hour.

This, and other Bliss Stitchers, may be equipped with **casters** at a slight additional charge, thus making them easily movable around the plant as needed.

BLISS TOP STITCHER:

The Bliss (patented) Top Sealing Stitcher is used for wire stitching the top flaps of regular slotted containers or Bliss Boxes, and gives a positive seal that holds the case rigidly during shipment and, at the same time, offers a great saving over the cost of taping the joints.

This machine is made with 15″, 25″ and 33″ throats, and may also be equipped with a V-Blade, a diagonal stitch being obtained in this case, also larger boxes can be handled.

The blade anvil is made of heat-treated, forged steel and the clinching end is quickly adjustable up or down without the use of tools. The work table is made of steel with special rolled edge and equipped with steel ball bearings to permit free motion in any direction of the box being stitched. The table is supported by the Bliss quick lift mechanism which is positive in action and instantly adjustable up or down. Movement of the table is facilitated by the use of counterbalancing steel springs. The capacity of the top stitcher depends upon the size of the box and the skill of the operator, and is usually from 3 to 4 cases of average size per minute.

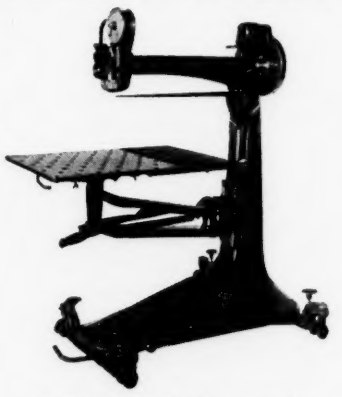

Fig. 5.—Bliss Top Stitcher, mounted on casters

BLISS POWER LIFT TOP STITCHER:

The new Bliss Power Lift Top Stitcher (patent applied for) is equipped with a power driven work table operated by a balanced foot pedal placed in front of the machine. A touch of the toe on the front end of

the pedal causes the table to be raised at the rate of 12 in. per second while depressing the back end of the pedal lowers it at the same rate. When the foot pedal is in neutral position, the table is rigidly held in the desired position by means of a brake.

A device actuated by the top of the case automatically stops the table at just the right position for the blade anvil to be entered under the stitching flaps, thus speeding up the operation by relieving the operator of the necessity of adjusting the height of the table by hand. The use of the Bliss Top Stitcher with power lift and automatic stop also minimizes the danger of damage to the case or its contents by forcing the same

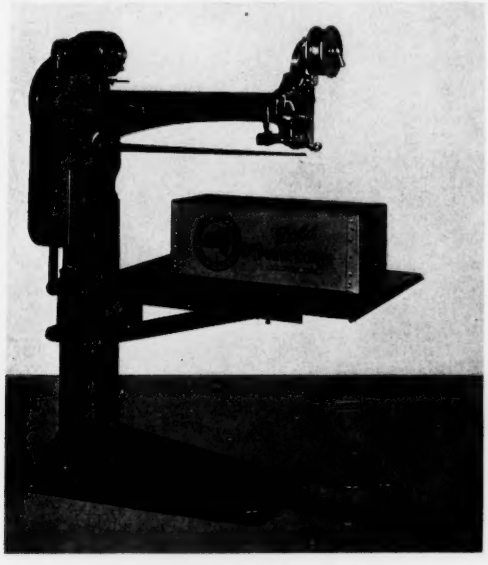

Fig. 6.—Bliss Power Lift Top Stitcher

over the blade anvil when the latter is in an improper position.

This machine can be placed beside a conveyor line or the table can be actually made a part of the line itself, each loaded case as it comes to the stitcher being rolled onto the table, raised by the power lift to the stitching position and dropped to the level of the conveyor by the same means after the flaps have been sealed. This relieves the operator of the fatigue inherent in the lifting of each package by hand and also eliminates the danger of tearing the flaps of the case when the latter is handled when unsupported by the table. An operative using this new type of machine can handle many more cases per day than by the old method and with a minimum of physical effort since a 90-lb. case can be as easily and as quickly manipulated as an empty one.

The power lift is actuated by the same motor that operates the stitching mechanism so that no additional power is required. The latest and most improved types of clutches and brakes are employed, designed to withstand the rough usage of high speed production service.

BLISS COMBINATION STITCHER:

This machine can be used both for bottom stitching and top sealing and is intended for plants whose production does not warrant the installation of separate

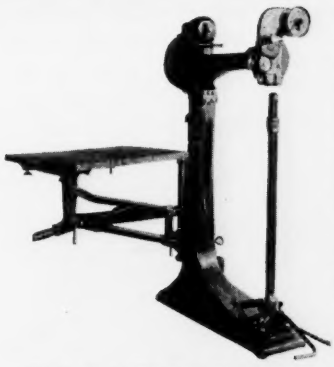

Fig. 7.—In position for bottom sealing

Bottom and Top Stitchers. For assembling cases by bottom stitching, the blade anvil of the machine is dropped down against the pedestal by removing a pin, the table is swung to one side, and the post placed in a socket on the base and locked into position. Neither arm nor table interfere in any way with the operation. After the desired number of cases have been bottom stitched, the post is removed and placed in a socket on the side of the pedestal, the table and blade anvil swung into position and locked in place, whereupon the machine is ready for top stitching of the loaded containers.

Fig. 8.—In position for top sealing

The change from bottom stitching to top sealing can be made in less than one minute and, therefore, does not appreciably interfere with production. Bliss Combination Stitchers are much used in such industries as shoe manufacturing, meat packing, and the shipping of foods, shingles, rubber goods, chemicals, etc.

BLISS STITCHERS FOR REGULAR SLOTTED CONTAINERS:

The Bliss R. S. C. Stitcher is designed for stitching the manufacturers' seam of regular slotted containers, both solid fibre and corrugated. It incorporates the regular high speed Bliss Stitcher Head into a machine with steel work table, provided with quickly adjustable guides. The flaps are positioned and held in place during stitching by the "Bliss Open-Head Device," which is rigidly attached to the stitcher head casting, is made of one piece and is self-supporting, the clincher arm not resting upon the box blank at the moment of stitching as is the case with competing machines. The work table is supported by a rigid arm and may be raised or lowered to suit the work. The table and Open-Head Device may be removed and the machine used for regular box work if desired.

Fig. 9 shows a Stitcher for manufacturer's seams with diagonal head which drives a staple at 45° to the grain of the board. This is particularly desirable when used on corrugated stock as the staple straddles the corrugations and thus the holding power is increased. This type of machine was brought out to meet the increasing demand for corrugated boxes

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(especially with kraft liners), with the manufacturer's seam stitched instead of taped. Standard throat lengths are 32″, 38″, and 48″.

Fig. 9.—Bliss R. S. C. Stitcher (Diagonal Stitch)

BLISS AUTOMATIC R. S. C. STITCHER:

Automatic and Semi-Automatic R. S. C. Stitchers are also made which automatically feed in the box blank, set the staples with proper spacing and then eject the finished box onto a conveyor or pile. These

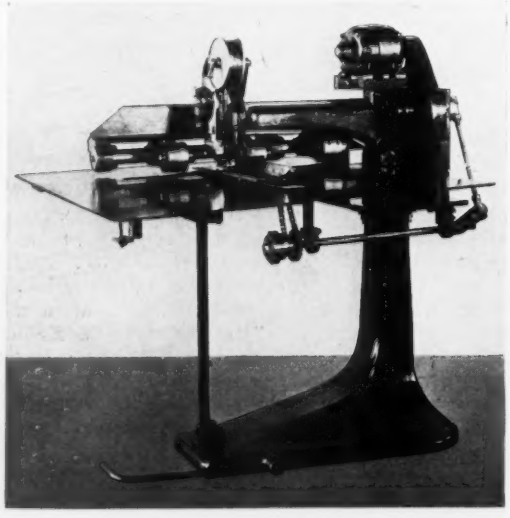

Fig. 10.—Bliss Automatic R. S. C. Stitcher

machines are especially useful for handling long runs of cases that are comparatively long or deep such as bumper, shade cloth and mattress boxes. Special folding and feeding devices can also be incorporated in these machines, an example being shown in Fig. 11.

CORNER REINFORCING STITCHER:

Regular slotted containers used for can cases are usually made of solid fibre with vertical grain because of the added strength and protection to the goods. Vertical grain cases, however, are very apt to break or split at the corners when handled unsealed. A Special Bliss Stitcher has been placed on the market for driving a $1^1/_8$″ crown staple around all four top corners, the staples being driven into the box blank while flat and made loose so that they will tighten up around the box when the latter is squared up in assembly. The use of the Bliss reinforcement obviates the former difficulty with vertical grain boxes and yet is very inexpensive and quick to apply. The work can be done on Bliss Single or Multiple Head Stitchers.

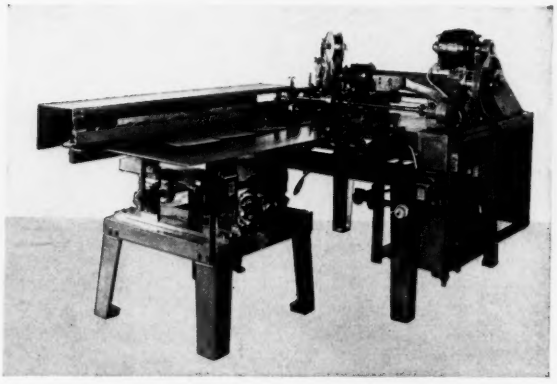

Fig. 11.—Special Automatic Folder and Stitcher

BLISS PORTABLE STITCHER:

This new and unique machine is entirely self-contained, including a built-in Universal motor, new type stitcher head (patent applied for), and special styles of blade anvil. The entire machine weighs only 20 lbs. and is usually supported by means of a spring from an overhead hook or trolley so that the operator can move it freely in any desired direction, but does not have to support even the small weight involved. Moving parts are made of hardened steel while the frame-work is constructed of light metals and alloys, thus combining a maximum of strength with a minimum of weight. Any of the standard stapling wires such as book binders', ribbon or Hybar may be driven with this machine, regular 5 lb. coils being used. The machine is operated by pressing a conveniently located button with the thumb, driving one or a succession of staples as desired. It is regularly equipped with a 10″ blade anvil, but several special types of anvils have been designed for handling different styles of work.

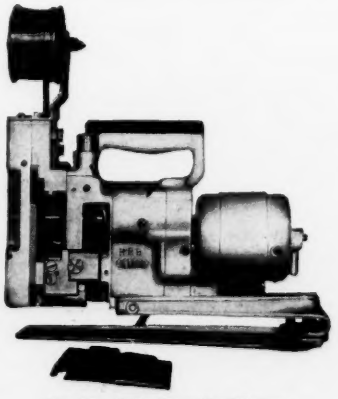

Fig. 12.—Bliss Portable Stitcher

Fig. 13.—Sealing top flaps of Bliss Box with portable stitcher

The Bliss Portable Stitcher has been designed to meet a long-felt need and is especially recommended for the sealing of containers of unusually large dimensions or exceptional weight which are awkward or impossible to handle on a regular top stitcher. Another important use is for sealing the tops of mixed sizes of cases varying in height and requiring constant readjustment of the table of a standard top stitcher The outstanding advantage of the portable for such uses is that the cases need not be removed from the conveyor line or handled in any way, the stitcher being taken to the case rather than the case to the machine as at present.

A special "C" shaped blade anvil has been developed for stitching long seams of regular slotted containers or Bliss Boxes, the curved end of the anvil (carrying the clincher) being inserted under the flaps to be stitched and functioning like the Bliss open head device. It differs from the latter, however, in that it can be withdrawn from the end of the stitched seam through a 2″ opening, being turned out around the last staple driven. This is one of the most important applications of the machine and one that is coming into considerable use. Another use is for the setting of temporary stitches in the top flaps of containers for warehousing before permanent sealing is required, this being accomplished without removing the case from the conveyor line.

BLISS BUMPER CASE STITCHER:

The Bliss Bumper Case Stitcher is used for stitching the end flaps of automobile bumper boxes, shade cloth cases or other containers that are very long compared with width and depth. The machine is set up on a work table and is operated by a foot pedal extension on the floor. A blade anvil is employed and the operation of the machine is analogous to that of a Top Stitcher. Many such machines are in use daily saving their owners a considerable amount of money because of the replacement of taped joints with wire stitching.

BLISS ADHESIVE SEALER:

The Bliss Sealer, or compression unit, differs from other similar machines in that both top and bottom belts are driven, thus maintaining even compression and making it possible to pass a single box through if desired. The bottom roller bed can be set at any desired point and the top unit is quickly adjustable up or down by means of a crank. Roller guides are provided on the entrance end of the machine, both top and bottom, which hold the sides of the box firmly in place until the adhesive has taken its initial set. These guides are quickly adjustable for spacing, being moved in or out simultaneously by a crank.

The driving mechanism is a self-contained unit (entirely enclosed) with phosphor bronze gear and hardened steel worm of the best type. An automatic trip is provided, actuated by each entering box so that the machine only operates as new boxes are pushed over the trip by the operator. The Sealer is furnished with casters and is thus easily moved wherever needed; screws with handwheels being provided to support the machine when in use. The motor is small and can be operated from a lighting socket. All rollers operate on ball bearings.

Standard lengths are 7′, 9′, 12′, 15′, and 20′, but Sealers may be built for any greater length required.

BLISS AUTOMATIC GLUER AND SEALER:

The Automatic Gluer may be built into Sealers up to 15′ long, beyond which it is furnished as a separate unit. The Gluer is operated through a central shaft which also acts as a support, thus economizing on space. The skip gap cam is quickly adjustable for the length of gap required. The machine is portable and can be moved as a unit if desired. An automatic feeder permits only one box to enter at a time. The glue pots are made of aluminum and the glue rollers of brass, carefully fitted into the glue pot. The glue rollers are instantly adjustable both for height and for spacing. Operating and adjusting levers may be on either side of the machine, as desired. This machine is completely automatic and will handle up to 22 cases per minute.

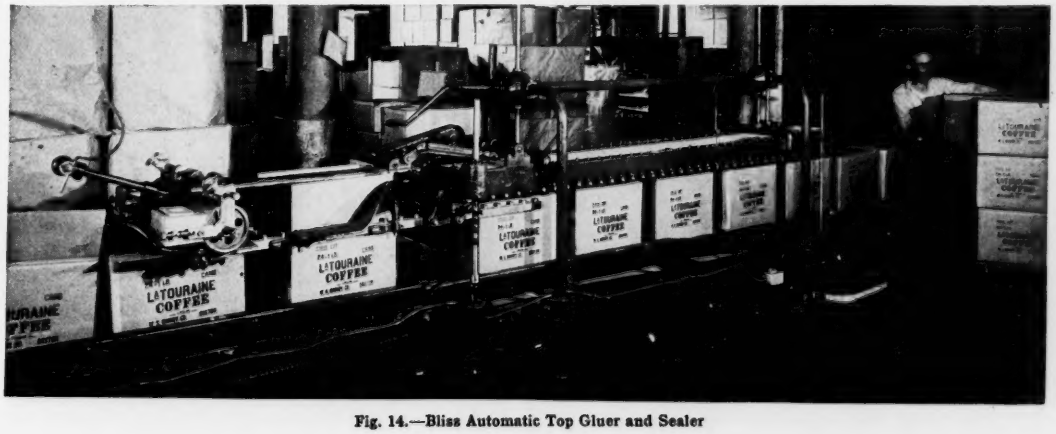

Fig. 14.—Bliss Automatic Top Gluer and Sealer

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H. R. BLISS COMPANY, Inc.

BLISS BOXES

The strongest and most economical fibre container on the market today is the BLISS BOX (patented), which is of three-piece construction, comprising a body sheet forming the bottom, two sides and top, and two end panels, flaps being provided for assembly by wire stitching

Over thirty-five million BLISS BOXES were used last year by such nationally known concerns as the National Biscuit Co., Endicott Johnson Corp., U. S. Rubber Co., Diamond Match Co., Procter & Gamble Co., Swift & Co., Ohio Match Co., Hood Rubber Co., Wilson & Co., Dominion Rubber Co., Hecker-H-O Co., Hoberg Paper & Fibre Co., Jacob Dold Co., Snider Packing Co., Scott Paper Co., Armour & Co., Dunn, McCarthy, Inc., Mathieson Alkali Co., and many others.

Fig. 15.—Bliss Boxes

Some of the products regularly shipped in BLISS BOXES are package foods, shoes, soap, soap powder, canned goods, fresh and smoked meats, sausages, pail lard, bulk macaroni, matches, toilet paper, packaged chemicals, etc. The use of BLISS BOXES has more than doubled in the last three years.

BLISS BOXES are *stronger* because all four vertical seams are reinforced and because the grain of the board can be run to give maximum resistance to stress on the sides and ends. The strength of the BLISS BOX is concentrated at the edges and corners to withstand rough handling in stacking and transit. Both drum tests and actual service have demonstrated their value for the safe packaging of merchandise.

BLISS BOXES are *economical* because they contain no waste stock, the saving in area of board for a given cubical content varying from 8% to 25% of that required for the old type regular slotted carton. In addition, the extra strength of the BLISS BOX often permits the use of lighter board throughout, or of a combination of lighter body sheet with regular weight end panels. In such instances the saving in weight may be as high as 40%. Freight charges are reduced by the use of Bliss Boxes due to the lighter weight, the saving frequently amounting to from $2.50 to $25.00 per thousand.

Many different styles of BLISS BOXES are available to suit individual requirements, size, nature and weight of contents, and the number used per day. Various types of machines are also available for assembling and sealing these different styles of boxes, the more important of which will be described hereinafter.

BLISS BOXES are manufactured of solid fibre or corrugated board by all of the leading box mills in the United States and Canada, under license from the H. R. Bliss Company, Inc.

The Bliss #2 Box is the most economical type and is largely used where the daily requirement of cases is great. In this style the stitching flanges are a part of the end panels and for assembly are stitched onto the body blank as shown in Fig. 16, a Bliss Double-Head Stitcher usually being employed.

The Bliss #4 Box has the flanges on the body sheet, stitched to the end panels when assembled. This case contains slightly more board than the #2 Style, but has the advantage of having the flanges at the ends of the case which gives added protection for the shipment of products such as canned goods. This box may be assembled on a Bliss Box Stitcher or Bliss Top Stitcher, which is an added advantage to the small user since the expense of buying a Double-Head Stitcher is avoided. It is much used by meat packers, canners, and by concerns having relatively small requirements of cases per day.

Fig. 16.—Bliss Box in partial and complete assembly

The Bliss #4-2 Box has flanges both on the body sheet and the end panels and when assembled has a double reinforcement on all of the vertical seams. This case is used where exceptional stacking strength or protection of the contents is required.

The Bliss #24 Box is made of four blanks, the body sheet being split along the middle of the bottom, and is usually assembled at the box mill in one-piece form. It has the advantage for the small user or user of many

sizes that it comes to his plant in knocked-down condition but at the same time it provides all of the savings in stock inherent in other types of BLISS BOXES. The bottom is assembled on a Bottom Stitcher or may be taped. This box is returnable for reuse by removing the staples on the bottom with a Bliss Staple Remover.

There are many other types of BLISS BOXES in use but the above mentioned are those which serve

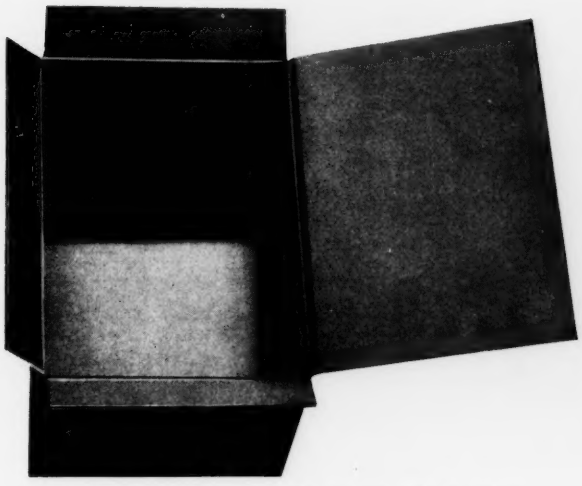

Fig. 17.—Bliss Box with overlap at side, open and ready for packing

the principal requirements of the average shipper. Full information on other types will be given promptly on request.

Many millions of BLISS BOXES are being used yearly for the packing of products formerly shipped in wood or wire bound containers. In many instances the BLISS BOX is the only type of fibre case that is strong enough to carry the goods, and of course the economy of using the BLISS BOX in place of wood is very great while the saving in freight charges is equally large.

The H. R. Bliss Company, Inc., will be glad to send its representative to any plant upon request to analyze its packing and shipping problems and recommend the best type of container to meet the conditions, the most advantageous methods of assembling and sealing the same, together with the best and most economical type of equipment to employ.

The use of the various types of BLISS BOXES is permitted under Rule 41 of the Consolidated Freight Classification. Methods of assembling and sealing as well as the box construction are covered by U. S. and foreign patents, issued and pending, all controlled by the H. R. Bliss Company, Inc.

BLISS BOXES are usually sealed by wire stitching either with center or side overlap, this operation being conducted on a Bliss Top Stitcher either of standard or automatic type.

BLISS BOXES can also be sealed by adhesives using a 2″ overlap, on side, center, or end, or by a combination of wire stitching and adhesive sealing. This latter operation can be conducted on fully automatic machinery requiring no hand labor whatsoever after the goods have been placed in the container.

Fig. 18.—Bliss Boxes

BLISS SINGLE HEAD ASSEMBLY STITCHER:

The Bliss #4 Box is usually assembled on the machine shown in Fig. 19, which is fitted with a gauge on the arm and also a panel holder to aid the operator

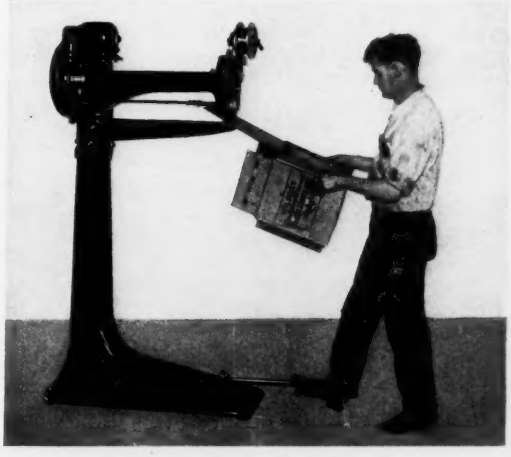

Fig. 19.—Bliss Single Head Assembly Stitcher

in holding the work. The end panels are stitched to the flanges on the part of the body sheet forming the bottom of the case, after which the side flanges are stitched in place. A skilled operator can easily assemble two average sized cases per minute. This machine may also be used to complete the assembly of the Bliss #4-2 Box, stitching the flanges on the end panels after the box has been assembled in #2 form on a Double-Head Stitcher.

XUM

BLISS DOUBLE-HEAD ASSEMBLY STITCHER:

This machine (patented) is designed especially for the assembly of Bliss #2 and #4-2 Boxes. It has a work table in the rear holding the body blanks, the end panels being stacked on either side of the operator.

Fig. 20.—Bliss Double-Head Assembly Stitcher

An automatic feeding and spacing mechanism is built in so that the operator has only to place the blanks in proper position and step on the pedal, the staples being driven simultaneously in both flanges and properly spaced. Fig. 16 shows a typical Bliss Box after the first seam has been taken, while Fig. 20 shows the machine in operation on the second seam.

This equipment is very fast in operation, three to four or even more complete boxes being assembled per minute by a good operative. It is quickly adjustable for any length or width of box and drives a diagonal stitch which gives maximum strength to the seam.

BLISS TOP STITCHER:

Fig. 21 illustrates the most common method of sealing Bliss Boxes by use of a Bliss Top Stitcher. The table is set to proper height, the flaps are folded in place and the blade anvil inserted. The center seam and flaps at one end are first stitched, leaving a 4″ space, the case then being reversed, the anvil inserted through the 4″ opening and the stitching completed. This gives a very tight and secure closure of the box and average sized cases can be sealed at a rate of three or more per minute. The blade anvil is rigidly supported and will not injure the contents of the case.

BLISS SIDE SEAM STITCHER:

Bliss Boxes overlapped at the side may be sealed on a regular Top Stitcher but it is often better to use a Bliss Side Seam Stitcher. This is fitted with a Bliss Open Head Clincher and will handle six to ten cases per minute. A space of 3″ to 4″ at each end of the seam is left unstitched for insertion of the blade anvil of a regular or Double-Head Top Stitcher used to stitch the two end seams.

On large cases the top seams may advantageously be sealed with a Bliss Portable Stitcher with "C" anvil (shown in Fig. 13), the advantage being that the case can be stitched without removal from the conveyor line.

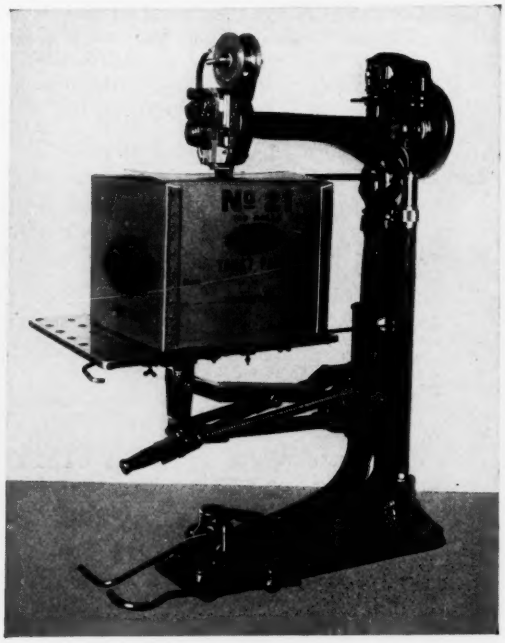

Fig. 21.—Bliss Top Stitcher

BLISS BOX TOP SEALING EQUIPMENT:

When large numbers of cases of a single size are to be sealed the Bliss Full Automatic Side Seam Stitcher is recommended. This machine takes the box from the conveyor line, folds the flaps in proper position and feeds the same under the stitcher, which drives and spaces the staples and moves the partially closed box onto another conveyor line. The feeding mechanism also automatically squares up the box and holds it tightly in position while being stitched. The machine will handle twenty or more cases per minute and requires no labor whatsoever.

The end flaps on boxes from the above machine may be stitched on the Bliss Double-Head Top Stitcher, which automatically feeds the box and drives and spaces the staples, the operative having only to move the case into the machine and see that the blade anvils are properly inserted. Rollers are provided to keep the sides of the box in shape while the flaps are being stitched and a work table with ball bearings is used to facilitate the movement of the case. The capacity of this machine is twelve or more cases per minute. There is another type of Bliss Double-Head Top Stitcher available which is completely automatic in its operation, requiring no operative, all feeding and stitching operations being done mechanically.

The end flaps of Bliss Boxes may also be sealed with adhesives on a Top Automatic Gluer and Sealer, under a recent ruling of the Consolidated Freight Classification Committee. Large users of Bliss Boxes can therefore seal the tops of such cases on fully automatic stitching or gluing machines, no labor whatsoever being required after the contents have been placed in the box. This is of great advantage in plants which use large numbers of cases and wish to employ straight line production methods. Figs. 15 and 18 illustrate some of the BLISS BOXES now in regular and large scale use by nationally known shippers in this country.

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YOUR INKS
MUST BE RIGHT
THE appeal of color is universal. Good color on a package wins the eye of the consumer, creates a favorable impression and increases sales.
To secure good color, however, the right inks must be used. They must be pure and rich in tone and intensity, free from chemical reaction, perfect in their reproductive qualities.
Levey Inks are known from coast to coast for their superb printing qualities and exceptional brilliance. So superior and dependable have they proved to be that many nationally known manufacturers specify Levey Inks for all their package wraps, cartons, labels and promotional material.
There is a Levey Ink for every purpose, including printing on transparent cellulose and glassine.
LEVEY INKS
FREDERICK H. LEVEY COMPANY, Inc.
70 BEEKMAN STREET
NEW YORK, N. Y.

XUM

TO OBTAIN RICH, STRIKING CARTONS

. . . . the inks must be rich, vivid and full of life.

Plates Courtesy of
BROOKS & PORTER, Inc.
NEW YORK CITY

SINCE the appearance of your cartons plays such a vitally important part in the merchandising of your product, why run the risk of having them appear dull, lifeless and faded when you can readily obtain rich, vivid, permanent effects with Levey Inks?

Their colorful qualities command attention; their superior reproductive qualities give uniformly satisfactory results; and their enduring qualities insure longer life for your carton.

If you have a special ink problem, the services of our Research Department are at your command. They will gladly aid you without the least obligation on your part.

SPECIFY LEVEY INKS

FREDERICK H. LEVEY COMPANY, Inc.

59 BEEKMAN STREET NEW YORK, N. Y.

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No. 20
PERMANENT WAVING SUPPLY
FOR CREPE HEATERS
NESTLE
SAVE MONEY THROUGH THIS AMAZING SPECIAL! IT OFFERS THE BEAUTY TRADE, THE FINEST FINGER WAVING LOTION KNOWN, AT A PRICE YOU SIMPLY CAN'T OVERLOOK!

Plates Courtesy of
BROOKS & PORTER, Inc.
NEW YORK CITY

The Effectiveness of Your Labels and Inserts

DEPENDS ON THE INKS YOU USE

Whether you use color for attention or emphasis, or as a means of identification, it should always be uniform in hue and intensity.

You can always be sure of obtaining this uniformity if you specify Levey Inks; they are standardized as to quality, hue and intensity.

When special inks are required for some special purpose, our technical staff will gladly cooperate with you. Consult us on your ink problems.

SPECIFY LEVEY INKS

FREDERICK H. LEVEY COMPANY, Inc.
90 BEEKMAN STREET NEW YORK, N. Y.

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LEVEY
INKS
Good design plus good ink builds good-will.
Manufacturers who realize the importance of using the right inks for their packages, cartons and labels, take no chances on inks less colorful, brilliant and enduring than Levey Inks.
The numbers of the Levey Inks used on these four pages are given below.

RED	BLUE	YELLOW	BLACK	GOLD
Q-894	Q-893	Q-892	11453-A	P-688

Plates Courtesy of
HAMPDEN GLAZED PAPER & CARD CO.
HOLYOKE, MASS.

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Modern display packaging gives your product prominent location in the dealer's store, on the counter, on the floor, outside the shelf, in the show window and increases sales.

Specializing *in* window *and* store display advertising

EINSON-FREEMAN CO., INC.

LITHOGRAPHERS

OFFICES AND MANUFACTURING PLANT
STARR & BORDEN AVENUES, LONG ISLAND CITY, N. Y.

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Inventors and Manufacturers of the
EINSON-FREEMAN PATENTED DOUBLE-TIER CONTAINER
Licensee for Canada: Somerville Paper Boxes, Ltd., London, Ontario, Canada

◆ ASK FOR BOOKLET "MERCHANDISING WITH DISPLAY CONTAINERS" ◆

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EDWARD ERMOLD COMPANY

Automatic Labeling Machines of Quality

Hudson, Gansevoort and Thirteenth Streets

NEW YORK CITY, U. S. A.

GREAT BRITAIN	CANADA	AUSTRALIA	DENMARK, NORWAY, SWEDEN	BRAZIL
Matthew Wylie & Co., Ltd. London and Glasgow	Freyseng Cork Co., Ltd. Toronto and Montreal	Geo. H. Dowsing Sidney	Anton Petersen & Henius Copenhagen	Sander & Detuschmann Rio de Janeiro

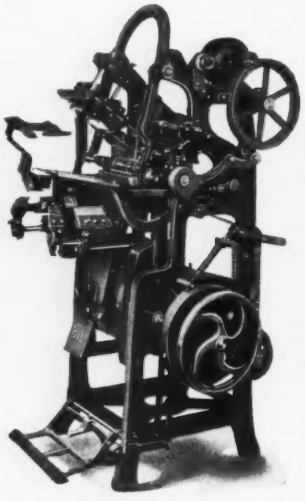
PARIS OFFICE AND PLANT: Societe Francaise des Etiqueteuse Ermold—11 Place des Vosges, Paris, France

PRODUCTS:

New Ermold Labeler—Simplex Body Labeler — Duplex Labeler — Single or Double Semi-Automatic Labeling Units—and Completely Automatic Multiple Units.

NEW ERMOLD LABELER:

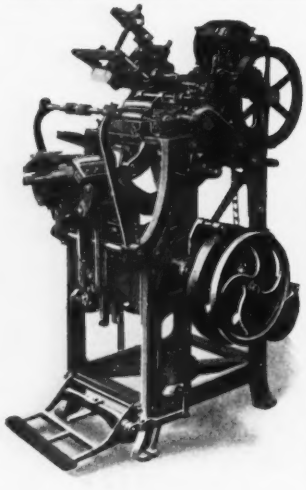
The most versatile of the machines we build and capable of applying one, two or three labels at one operation on one face of the package or body and shoulder label with tinfoil around the neck of the bottle. Has a wide range of adjustability, taking labels from ⅝" wide to 10¼", applied either part way or all around the container. To successfully operate the machine requires a ¼ H.P. motor, and the capacity varies between 30 and 45 packages per minute, depending upon the size of the container. The packages which are from fifty drops capacity to one gallon are capable of being handled by this machine.



IMPROVED "WIDE" ERMOLD LABELER:

This is the same model as the NEW ERMOLD, but built specially wide to accommodate large sized containers such as pails, flat sheets, etc., requires a ½ H.P. motor and has a capacity up to the ability of the operator to feed the same.

SIMPLEX BODY LABELER:



The smallest machine we build, requires a ¼ H.P. motor and is used largely as an auxiliary machine in plants of large capacity, label dimensions limited up to 5" in height and going half way around the container up to one quart capacity. Output of 40 packages per minute can be obtained and can handle flat, panel or round packages.

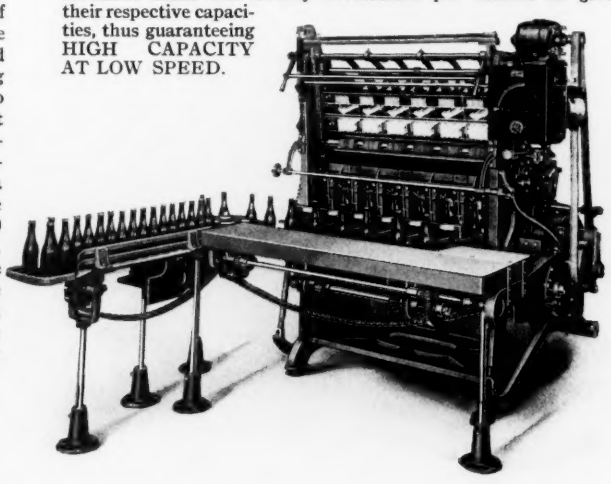
DUPLEX LABELER:

Specially designed where back and front labels are used on a package where not a large output is required, requires a ½ H.P. motor and can handle various packages.

AUTOMATIC MULTIPLE LABELERS:

Are the latest type of fully automatic machines built in three capacities, 4-Wide, 80 bottles a minute, 6-Wide, 120 bottles a minute, 8-Wide, 160 bottles a minute.

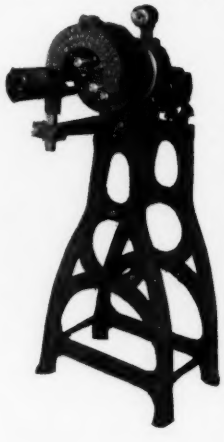
All machines can be arranged for applying body or body and neck labels, also on the 4- and 6-Wide two labels and tinfoil all at one operation, all units are equipped with ERMOLD patented cutout clutch, guaranteeing no breakage to either machine or container where undue strain is placed on moving parts. All machines make but twenty revolutions per minute to give their respective capacities, thus guaranteeing HIGH CAPACITY AT LOW SPEED.



SINGLE AND DOUBLE SEMI-AUTOMATIC LABELING UNITS:

These consist of our NEW ERMOLD LABELERS equipped with an automatic discharge attachment, exclusively an ERMOLD feature, and with a belt conveyor driven from the labeling machine, uses a ½ H.P. motor. Increases efficiency over the hand feed type machine over 30%, the moving conveyor empties itself after the labeling machine has ceased to label, thus increasing speed and efficiency.

The double unit comprises two machines both equipped with automatic discharge attachment and connected with conveyor. These units are used in plants where front and back labels are applied; thus giving maximum efficiency specially on small sized packages, a ¼ H.P. and a ½ H.P. motor are used on the double unit.



ERMOLD FOIL REMOVER:

Our latest addition to the ERMOLD LINE removes tinfoil from the neck of bottles before the same are placed in the soaker, thus enabling bottles to be properly cleaned and guaranteeing their sanitary condition for refilling. Operation consists of bottle being placed on the rest, moved onto a guide pin which acts in a dual capacity of guide in introducing the bottle, also closing the opening against introduction of removed foil. A revolving head peels the foil from the neck of the bottle, scrapers consist of specially hardened material making them wear-resisting, require a ¼ H.P. motor.

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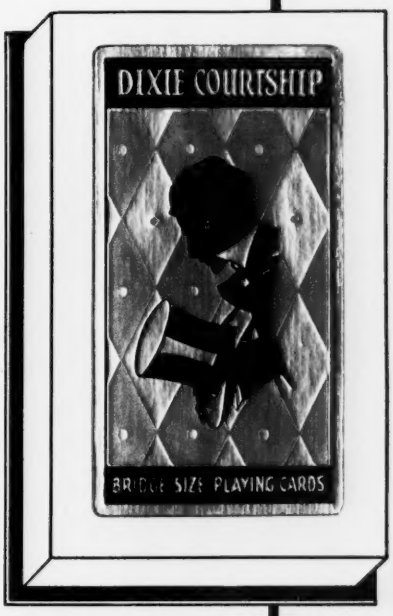
A FOXON LABEL *Tells the whole* Story

• With "one second to play," it is the business of the label on your product to tell what it is, what it's for and how good it is. To tell, at a glance, your *whole* story

• There is a language of words, of gesture, of color and line. Your label must be master of all, if it is to put over its one-second sales talk. The cheapest part of your package, it bears the greatest share of responsibility for creating customer contact. If it gets over, it's good! If it doesn't, it's out! No sale — no alibi!

• We consider it the healthiest sign of success that old customers continue to bring us their labeling problems, while entirely new lines of merchandise appear with regular frequency in our planning department.

• "Everything is packaged nowadays" is another way of saying "Everything is labeled nowadays." For the HOW and WHY, consult



THE FOXON COMPANY
227 West Park Street
PROVIDENCE, R. I.

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Use "TRAN-CEL-SEAL" Tape

GUMMED TRANSPARENT CELLULOSE

for sealing your packages wrapped with transparent cellulose

Price Per Roll
1" wide by 5000" long - - - $2.00
Other Standard Widths in Proportion.

Standard Widths
½", ¾", 1", 1½", 2"

Standard Carton Contents
30 rolls of ½" — 20 of ¾" — 15 of 1"
10 of 1½", etc. Price - - $30.00

Quantity	Discount	Net Price Per 1" Roll
1 Carton	....	$2.00
2 "	5%	1.90
3 "	10%	1.80
5 "	15%	1.70
10 "	20%	1.60
25 "	25%	1.50

Special widths equivalent to an aggregate of 30 rolls of 1" can be promptly furnished.
Based on specific individual requirements, correct adaptations of "TRAN-CEL-SEAL" Tape in conjunction with proper device for dispensing same, will be gladly studied and suggested by us.

STANDARD TAPE MOISTENER

Takes Tape ½" to 1½" gummed side out
Price $5.00

LOANED GRATIS TO "TRAN-CEL-SEAL" USERS

Weight 6 lbs.
Takes space 12¼" x 3" x 3½"

"TRAN-CEL-SEAL" is another of our highly developed "Gumcraft" quality products intended primarily for sealing packages wrapped with Regular Transparent Cellulose (more commonly known as Sylphrap or Cellophane) which is a modern adaptation to packaging in all industries.

"TRAN-CEL-SEAL" is dispensed in identically the same manner as any of our ordinary Gummed Sealing Tapes, preferably thru our Standard Package Sealers. It is also used in conjunction with Automatic Packaging Machines forming transparent bags in one operation, containing confectioneries, nuts and other free flowing commodities. Most economical and practical for sealing Regular Transparent Cellulose wrappings. Suitably seals transparent windows in display cartons.

"TRAN-CEL-SEAL" is odorless and approved for use on all commodities, whether food products, textiles, or any other chemical, mechanical or industrial commodity wrapped with Regular Transparent Cellulose.

"TRAN-CEL-SEAL" is ideal for binding, splicing, patching, edging, reinforcing or repairing purposes, such as paper money, torn maps, blue prints, book pages, music sheets, etc.

Full information, description and prices are shown hereon. Order several rolls for your experiments with "TRAN-CEL-SEAL" TAPE.

GUMMED TAPE & DEVICES CO.

173-177 Lafayette St. New York, N. Y.

If It's Gummed Paper or Cloth,—Think of "GUMCRAFT"

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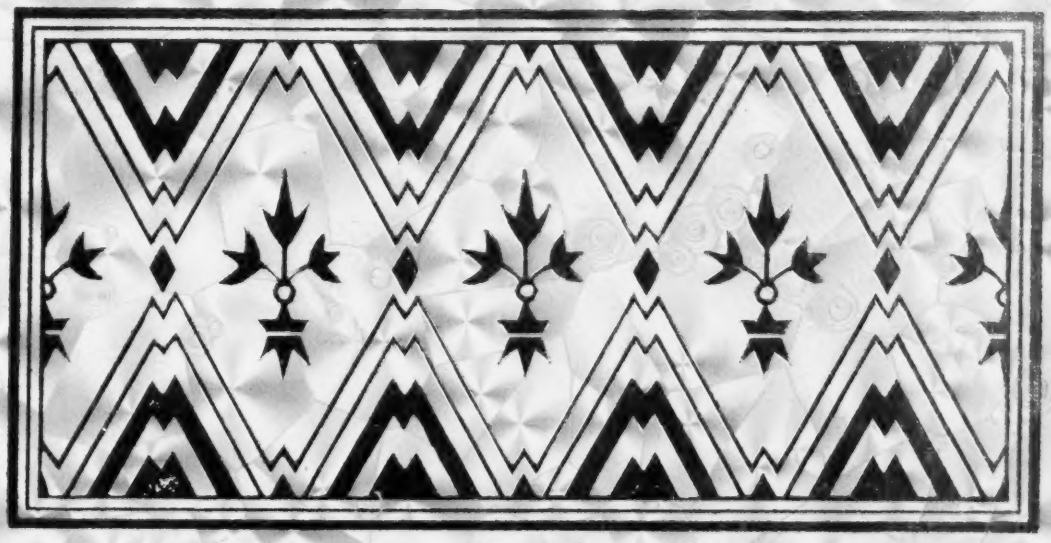
ALL PURPOSE GOLD CORPORATION

P.O. BOX 81 - BROOKLYN, N.Y.



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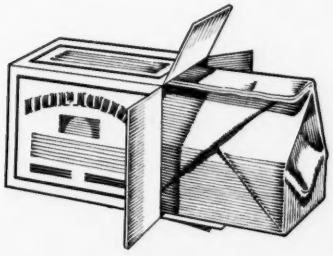
Do you make { a Food-Powder Product? / a Solid Product, Cartoned?

If so, here is the Solution of your Packaging Problem

For Food-Powder Products

nothing equals the Satchel-Bag Package, produced only by the Anderson Packager, built only by ourselves.



The Satchel-Bag Package is used for Jello, Royal, Junket, etc. It is unique, economical to make, sanitary, moisture-resisting, sift-proof, and guards its contents in their original form and condition. All Users like it.

It is suited to any food in powdered form, free-flowing or non-free-flowing, sold a "batch" to a package.

The machine makes the Satchel-Bag, fills and closes it, loads it into the carton and seals the carton; all at a rate of from 25 to 35 per minute complete.

All of which makes it proper to say that, if you manufacture a food-powder product, the "Anderson" offers you the solution of your packaging problem.

For Solid Products, Cartoned

you are bound to be interested in the Goat Semi-Automatic Cartoner, also built exclusively in the Goat Shops.

This machine is intended for cartoning solid objects, one or more to a carton, and particularly such of these products as are not put out in enormous quantities.

It is a most excellent investment under either of the following three conditions:

1. When a large manufacturer has a lesser volume of distribution on certain items or sizes.

2. For the smaller manufacturer whose output does not warrant investing in a full-automatic machine requiring a high-priced mechanic besides.

3. In the case of seasonal products, where the investment in a costly machine would lie idle and profitless during the off seasons.

The Goat Semi-Automatic Cartoner takes the knock-down cartons in a stack, sets them up ready for loading and delivers them to its conveyor, where the operators load them. Then it automatically closes and seals (or tucks) them.

The operator does not handle the carton; the number of operators is adjusted to the rate of output (from 20 to 30 per minute); there is no waste of labor; an enormous saving is effected over cartoning by hand.

Add to this that the machine is low priced and does not require a special mechanic and you will understand why it solves the solid-object cartoning problem.

PACKAGING MACHINE DIVISION of

The Fred Goat Co., Inc.

314 Dean Street, Brooklyn, New York

SPECIAL MACHINERY SPECIALISTS

Established 1893

For the design, development and production of special devices or machines please address our Contract Division

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PEERLESS ROLL LEAF CO., INC.

The Peerless Process of Hot Stamping and Embossing

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CHICAGO
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Peerless Supply Co.
7 Front Street

TORONTO
Wilson-Monroe Co., Ltd.,
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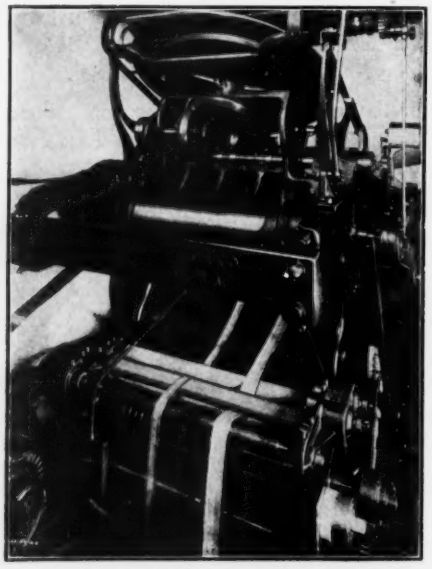
PRODUCTS

(1) Roll Leaf in Imitation Gold, Silver and Colors
(2) Genuine Gold Leaf in Rolls
(3) Automatic Feeders for Roll Leaf
(4) Embossing Presses
(5) Thermostatic Heat Controls
(6) Permatex—a Pyroxylin Coated Fabric
(7) Pyroxylin Inks for printing on Pyroxylin Fabrics and Foil Papers

ROLL LEAF

The modern boxmaker finds PEERLESS ROLL LEAF indispensable in his work. The printer also needs PEERLESS ROLL LEAF for obtaining fine decorative effects on box wraps, catalog covers, announcements and greeting cards, etc.

We furnish PEERLESS ROLL LEAF in genuine gold, imitation gold and silver and in a wide range of flat and metallic colors. Send for Color Chart and Price List CP-32.



Rear view of Special Heavy Duty Chandler & Price press equipped with Peerless Special Model Roll Leaf Attachment. Note convenient position for setting up rolls of leaf or adjusting feed.

ROLL LEAF ATTACHMENTS

An ordinary platen press of the Thomson Laureate or Colt's Armory type or the Special Heavy Duty Chandler Price type, equipped with a PEERLESS ROLL LEAF ATTACHMENT and a heating plate are all the equipment needed to produce the most distinctive embossed box wraps. A roll of PEERLESS LEAF is automatically fed across the face of an embossing die. One press operation transfers the foil to the paper and embosses the design at the same time The resulting impression is clean-cut, lustrous, distinctive.

We can supply PEERLESS automatic split feed attachments to fit various types of printing presses. Attachments to feed one, two, or three strips of leaf at the same time are available.

Each set of rollers on our split feed attachments can be adjusted to draw any amount of leaf from 1–16″ up to the capacity of the press. All our attachments operate automatically and require no attention from the operator. Write for illustrated literature giving complete details.

These box wraps were embossed with Peerless Roll Leaf by the Peerless Process

EMBOSSING PRESSES

We manufacture or are agents for a complete line of presses for use in the printing business. We also manufacture the highest grade electrical heating apparatus for hot stamping presses, including thermostatic heat controls.

SERVICE

We maintain a force of field men who have the actual experience and the training to give you intelligent help on any stamping problem that may arise.

INFORMATION

We will be glad, without obligating you in any way, to send you literature and complete details as to how the Peerless Process can serve your own business. The Peerless Portfolio, containing samples of box wraps embossed with Peerless Roll Leaf, will be sent free on request.

XUM

MADE BY LOUIS DEJONGE & CO.

STAMPED WITH MATCHLESS ROLL LEAF

XUM

Recognized as Standard

IN the fancy paper field, as in the other fields it serves, Louis Dejonge & Company have established a standard of excellence by which box papers generally are judged.

There could be no better proof of the effectiveness of Dejonge Box Papers for styling packages for merchandise of almost every description than their continued use year after year by many manufacturers of nationally known products.

Dejonge Papers are available in a wide variety of colors—from Pastels to Brilliants.

Write for sample swatches showing the complete line of these attractive papers.

LOUIS DEJONGE & CO.

NEW YORK CHICAGO

PHILADELPHIA

XUM

HORIX MANUFACTURING CO.

Manufacturers of Automatic Filling Machinery
CORLISS STATION, PITTSBURGH, PA.

PRODUCTS MANUFACTURED:

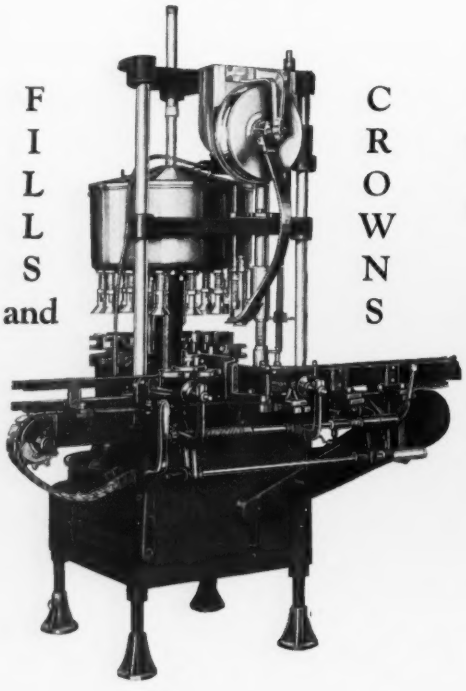
COMBINATION ROTARY FILLING AND CAPPING MACHINES
AUTOMATIC ROTARY FILLERS
GANG TYPE FILLERS
BENCH AND TABLE TYPE FILLERS
FRUIT AND BERRY WASHERS

Used to fill a large variety of styles and sizes of Bottles, Cans, or Jugs, from one ounce to five gallons, with such products as Catsup, Chilisauce, Vinegar, Soups, Fruit Juices, Syrups, Grape Juice, Wines, Waters, Still Beverages, Patent Medicines, Oil, Milk, Polishes, or any kind of light or heavy liquid.

Limited Space Permits Us to Illustrate Only Two of Our Many Production Machines

Our New Combined Rotary FILLER AND CAPPER
Model "H-E-C"

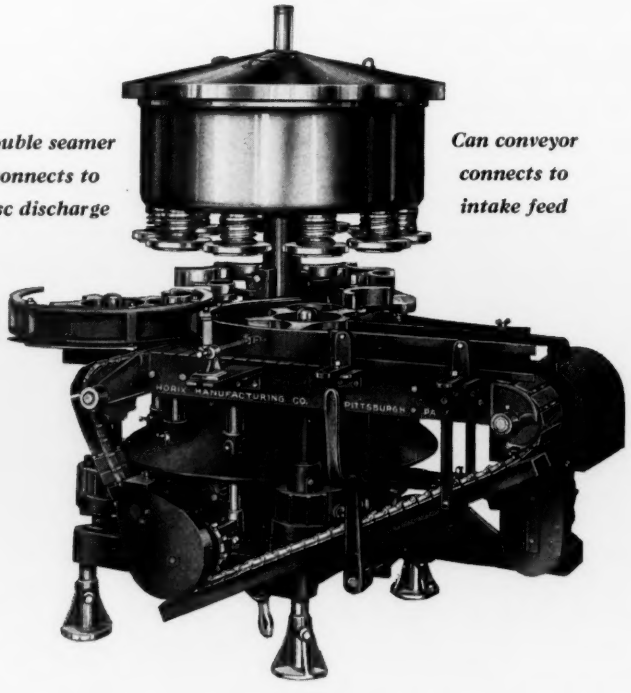
F I L L S and C R O W N S



Our New Rotary Filler for GALLON CONTAINERS
Model "H-S-10"

Double seamer connects to disc discharge

Can conveyor connects to intake feed



Submit Your Filling Problems to Our Engineers

HORIX-HALLER fillers, pre-eminent for twenty-five years in Production, Efficiency, Sanitation, Economy, and Long Life, are fully described in Catalog, which will be mailed on request.

XUM

CONSOLIDATED PAPER COMPANY

FACILITIES FOR SERVICE

FOLDING PAPER BOXES
PLAIN SHELLS
CORRUGATED & SOLID FIBRE
SHIPPING CASES

FOLDING PAPER BOXES

For the individual package made of fine quality Box Boards. Printed in bright colors from your own designs or designs created in our own Art Department.

PLAIN SHELLS

For tight-wrapped packages.

CORRUGATED OR SOLID FIBRE SHIPPING CASES

Made of fine quality high test Liners and Corrugated Straw Board, printed in Bold Poster Style in bright colors built to carry your merchandise safely to destination and

SPECIALLY DESIGNED

Corrugated Shipping Cases to carry odd shaped, fragile or hard to pack merchandise on cushions of air safely to your customers.

At Consolidated Paper Co., you have at your service—Paper Mills producing 750 tons of Paper a day—Box Factories of very large capacity completely equipped for speedy and economical production—an Art Department and a Package Designing Department.

An opportunity to serve you will be appreciated

CONSOLIDATED PAPER CO.,
MONROE, MICH.

750 *PAPER MILL CAPACITY TONS DAILY*

SAFETY

The widespread expansion of American industry is largely due to the phenomenal advance in modern methods of wrapping and packaging.

The Safety of foods, of every kind is assured when they are sent under the protection of —

KVP

GENUINE VEGETABLE PARCHMENT AND WAXED PAPER

The Rock Of Gibraltar

Strength and Safety World-Wide

The scientists of KVP Research Laboratories are constantly at work perfecting methods for keeping foods of every type safe against contamination of every kind. Protection against odors and tastes, moisture and dryness, against every hazard of transit is assured — not only for the present need but with foresight for future demands. Command their help in your problems.

Attention to every detail of economical production also insures that the RIGHT Paper for every need shall be available at the RIGHT price.

KALAMAZOO VEGETABLE PARCHMENT COMPANY

KALAMAZOO, MICHIGAN

XUM

Getting YOUR MERCHANDISE off the SHELF

PUT your goods right down on the counter between the buyer and the seller. Keep them there and make the dealer like it.

The next few pages show a few of many Forbes Counter Display Containers and Vendors—ingenious devices that lure the buyer's eye when he's in a buying mood—that hold your product right at his finger tips—that sell your product with a powerful, colorful display and a few forceful words convincingly placed.

Dealers give them preferred counter space because they do the trick—make extra sales with extra profits without effort to the dealer or his clerks.

Forbes DISPLAYS

XUM

Forbes Two-Tier Display can be made to hold any kind of small package. Can be made up in any design, any size. Patented and fully protected by Forbes Patent No. 1,704-531, dated March 5, 1929.

Forbes Package Cutouts are made to fit over a jar or package. Can be made for any product and in any shape. Simple, easy to put on, right in price and color. Shows in picture form what is in the package. Sells the goods it advertises.

Forbes Basket Seller ships flat and folds out to set up on counter or floor. A separate card fits over the edge of basket for advertising display. Holds packages, cans or bottles and is a corking sales puller.

Display Containers

SOMETIMES the retail salesman is too busy to become thoroughly informed about a product. Forbes Display Containers are designed to carry complete information in words and pictures regarding the article offered for sale. Sometimes the casual visitor hesitates to ask for detailed information. The display Container presents all this information and makes it easy for the prospect to become a customer.

Forbes

New York Chicago Detroit Philadelphia Rochester

XUM

COUNTER DISPLAYS

that do the selling for the Dealer....

FORBES recently engaged a well-known firm of business investigators to conduct an impartial survey and research of Window and Store Display. A staff of men was sent to retail dealers in twenty-three different cities and towns. They checked the number of people who stopped to look at the windows, the people who entered the store and those who were attracted to the Counter Displays.

They found that goods displayed in attractive Counter Containers were brought to the attention of the buyer and their sale greatly aided by the colorful pictorial designs and compelling catchlines that form a part of them. They found that while elaborate window displays were of the utmost value, the Counter Container Display was very important, as an aid to the Window Display, and usually closed the sale. In many stores the counter is giving way to the open table; these Display Containers are particularly good for this form of selling—the merchandise is conveniently displayed and its use described by the package in which it is received.

Forbes Carton Holder. A strong, simple easel support planned to hold an actual carton and to furnish a bright cutout to advertise it. Made in an economical way to keep the cost down.

Forbes Package Holder is shipped flat with the goods and is set up and placed on the show case or counter to hold one or more packages. An attractive cutout top makes it a great selling aid.

BOSTON

It tells you how to sell your goods

THIS little book contains information worth having. Send for it and keep it where it can be consulted whenever you need new sales helps for your dealers. It may also prove a sort of mental cocktail to start your mind working on a productive profit-making trail that will lead direct to fortune.

You will see that many of the selling helps have been used by the most successful firms to promote their business. These same money-making displays can be used to sell your goods, as many of them are controlled by us, under basic patents, and all are available for our clients.

Forbes Counter Display Container is a very popular form of display container and is probably in wider use than any other at the present time. It is simple to set up and sure to make sales. It ships the goods in good shape and helps to sell them quickly.

Forbes Bottle Display Card. An ingenious Display with an extra cutout hand attached and scored to bend out and fit over neck of bottle. No easel required, as botte holds up card.

Forbes Package Display Container can be constructed to hold any reasonable number of packages and designed to show brilliant pictorials and strong selling wording.

XUM

Forbes Cardboard Pyramid. It is often impracticable to display a pyramid of actual cans, jars, perishable fruit or other food products. This lithographed cutout display will give the same effect. It is one piece of stock, cut out and scored, ships flat, sets up easily.

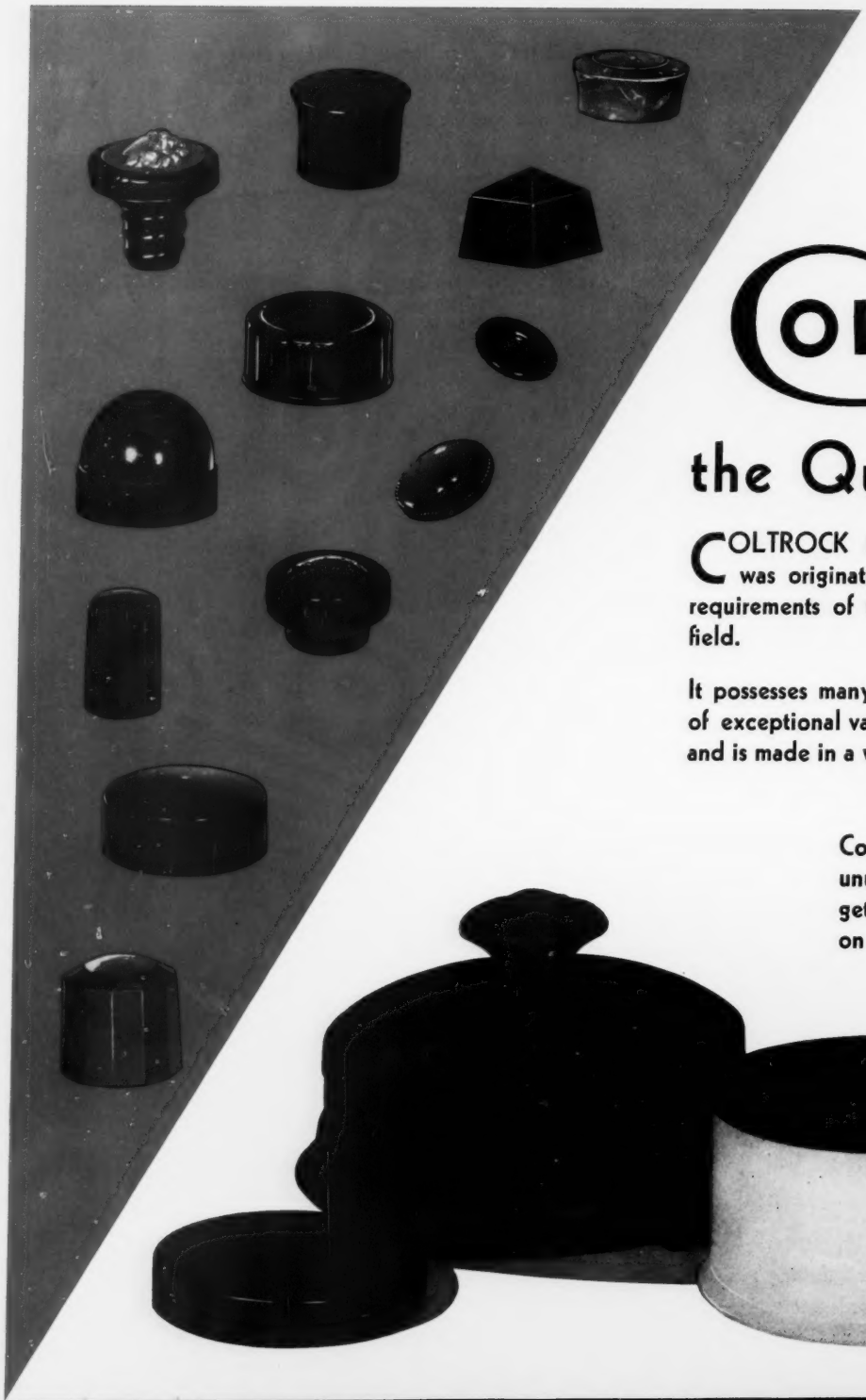
Forbes Counter Display Container comes to the dealer with the goods in fine condition. He opens it, sets it up easily, puts it on the counter and the sale starts right away.

TODAY—right now, send for "Getting Your Merchandise Off the Shelf." Read it carefully—study the diagrams. Select the style that lends itself best to your needs, then let us show you with a rough dummy how it can be made to sell *your* goods.

Forbes
LITHOGRAPH MFG. CO.
BOSTON

NEW YORK • PHILADELPHIA • CHICAGO • DETROIT • ROCHESTER

XUM



COLTROCK

the Quality Plastic

COLTROCK is a molding compound which was originated by us to meet the exacting requirements of the closure, notion and novelty field.

It possesses many special qualities which make it of exceptional value for containers and closures, and is made in a wide range of colors.

Complete information about this unusual molding compound, together with samples, will be sent on request.

PLASTICS · DI

COLT'S PATENT FIR

HARTFORD

BOSTON CHICAGO NEW YORK

XUM

Moulders in Plastics for Over Half a Century

The fastest growing plastics organization in the country. Operating the last five years on double time.

An organization of specialists, completely equipped to handle every essential phase of the art; your problem will be treated with confidence and dispatch.

Leaders in their respective industries have been served by us for years. We specialize in large volume production contracts.

Many Nationally Known Users « « « «

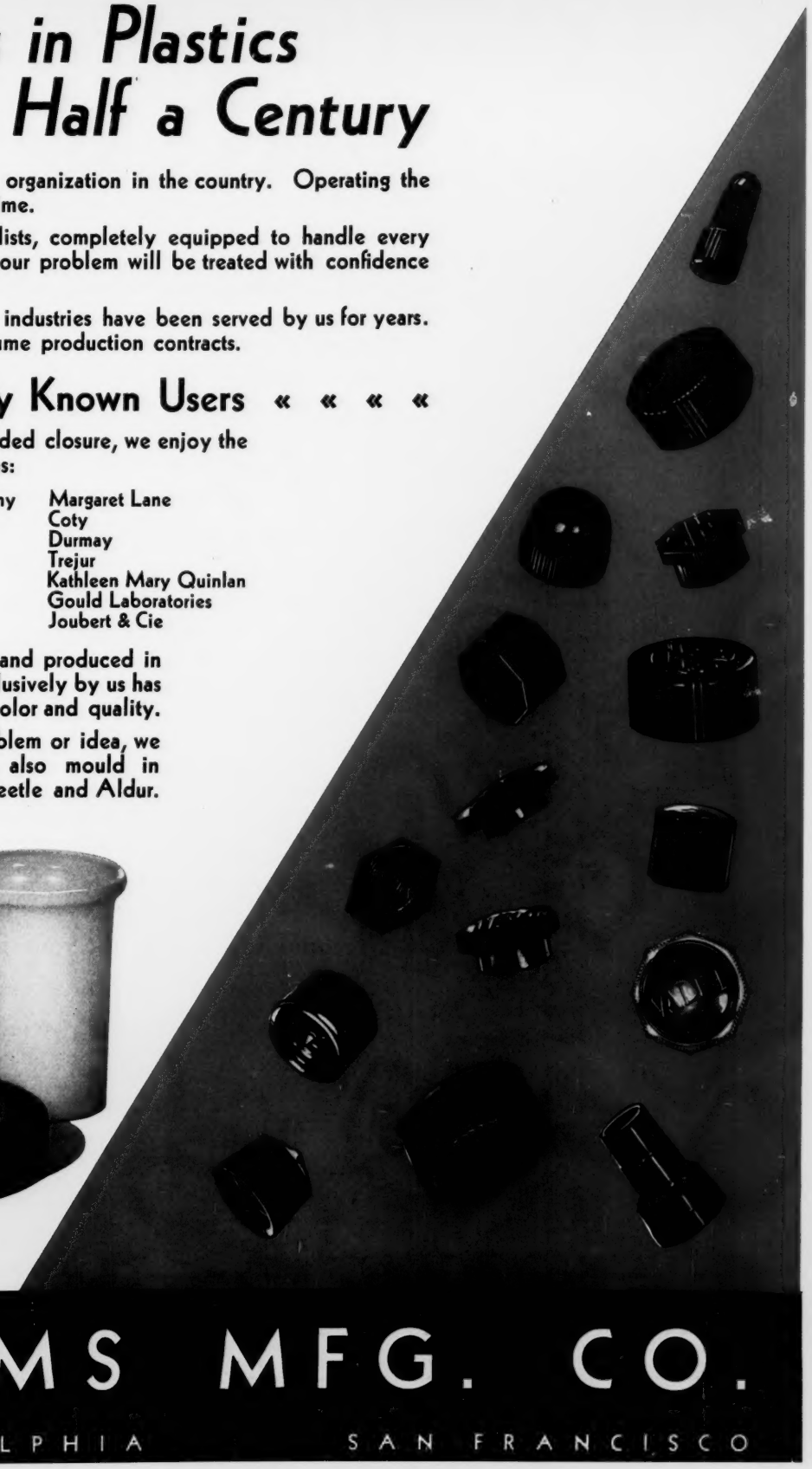
First to introduce the moulded closure, we enjoy the patronage of such houses as:

Colgate-Palmolive-Peet Company
E. R. Squibb & Sons
McKesson & Robbins, Inc.
Pinaud, Inc.
Pond
Marshall-Field
F. B. Stearns & Company
Margaret Lane
Coty
Durmay
Trejur
Kathleen Mary Quinlan
Gould Laboratories
Joubert & Cie

"COLTROCK" developed and produced in this plant and moulded exclusively by us has answered the problems of color and quality.

Whatever your plastic problem or idea, we invite your inquiry. We also mould in Durez, Bakelite, Plaskon, Beetle and Aldur.

Samples on request.



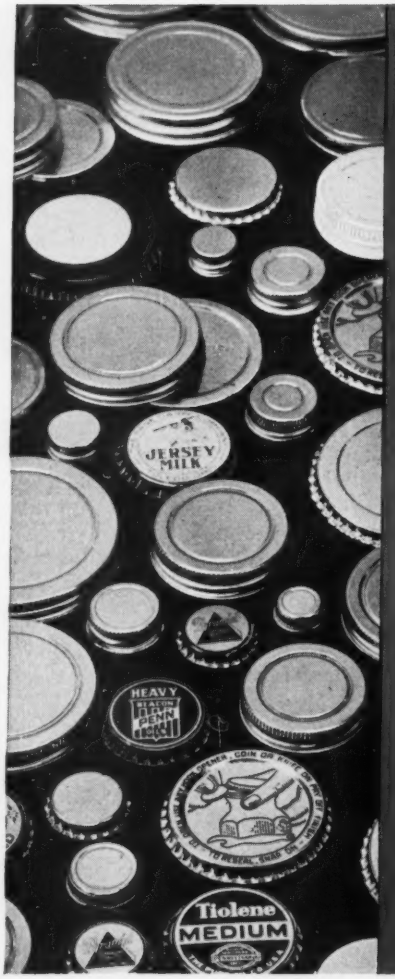
DIVISION

IRE ARMS MFG. CO.

D RD · CONN.

PHILADELPHIA SAN FRANCISCO

CLOSURES *for* EVERY GLASS



IF yours is a product that is packed in glass, use the vast resources of "Sealing Headquarters" to insure correct and satisfactory sealing. Here you will find dependable closures for every kind of glass packed product—a tremendous manufacturing plant, the largest of its kind in the world—a wealth of practical experience in the solution of sealing problems.

Crown Engineers are not disconcerted by difficult sealing jobs. They have at their disposal one of the finest research laboratories in the country to assist them in solving unusual sealing requirements. With many types and sizes of closures from which to choose, their recommendations are always free from prejudice or predisposition. To provide *the right closure for your product* is our first and only consideration.

Whenever closures are the question, turn to "Sealing Headquarters" for service. It's the quickest and surest way to obtain satisfactory, economical sealing for your product.

WRITE, WIRE OR PHONE THE OFFICE NEAREST YOU

ATLANTA, GA. *55 Forsyth St., S. W.*
BALTIMORE, MD. *Eastern Ave. & Kresson St.*
BOSTON, MASS. *143 Sidney St. Cambridge, Mass.*
CHICAGO, ILL. *1346-1354 Northbranch St.*
CINCINNATI, OHIO *212-214 E. Third St.*
CLEVELAND, OHIO *Elliott Sales Service Co. 3621 Lakeside Ave.*
DALLAS, TEXAS *Ross & Austin Sts.*
DETROIT, MICH. *2179 Franklin St.*
HOUSTON, TEXAS *1011-13 N San Jacinto St.*
JACKSONVILLE, FLA. *P. O. Box 2278, Sta. A.*
KANSAS CITY, MO. *500 Delaware St.*
NEW ORLEANS, LA. *518 Howard Ave.*
NEW YORK, N. Y. *Bush Terminal No. 3 219 36th St. Brooklyn, N. Y.*
ST. LOUIS, MO. *406 N. Third St. 7211 Delmar Blvd.*

WESTERN STOPPER COMPANY—West Coast Representative
SAN FRANCISCO, CAL. —Potrero Ave. & 25th St.
LOS ANGELES, CAL.—1717 Industrial St.

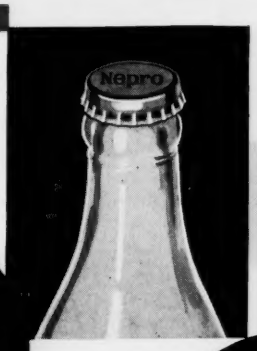
CROWN CORK &

WORLD'S LARGEST MAKERS OF CLOSURES FOR GLASS

XUM

PACKED PRODUCT

DACRO DISC MILK CAP
The sanitary seal for milk, cream, chocolate milk and other dairy products.



NEPRO
The world's standard cap for carbonated beverages. Universally used.

CROWN SCREW CAP
Has the deep hook-shaped thread—an exclusive feature—that insures positive sealing pressure and gives far better sealing.

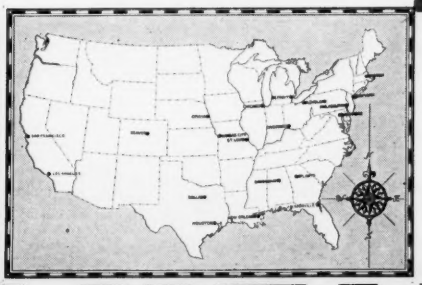
CROWN MASON CAP
The perfect seal for mason jars. Widely used by food packers and in home canning.

AXA
An efficient hermetic seal for food and other glass packed products.

LIFT THE WIRE *and* IT'S OFF

NATION-WIDE SERVICE

There is a Crown Cork & Seal office conveniently near you. Write, wire or phone for the CCS representative whenever you need closure service.

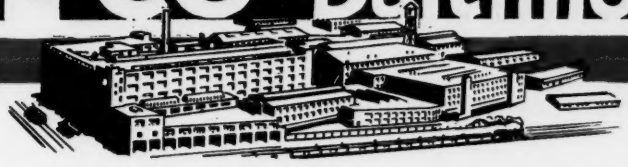


SNAP AND IT'S ON

DARLING CLOSURE AND OPENER
Real hermetic sealing combined with amazing convenience in opening.

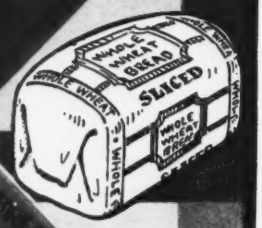
SEALCO · Baltimore Md.

CONTAINERS



KELWAX

WRAPS FOR PROTECTION



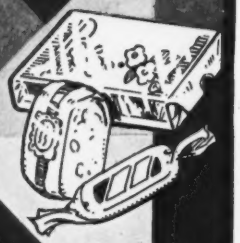
BREAD WRAPPERS

INCREASE
YOUR SALES—

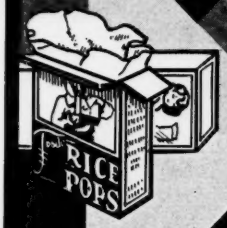
Merchandise Your Products
In Quality
WAXED PAPERS
Artistically Designed and Printed

CAKE
BREAD
CONFECTIONERY
WRAPPERS
At Low Prices
Write or Wire For Information

CAKE WRAPPERS



WRAPPERS



LINERS

MANUFACTURED
COATING DIVISION
KELLOGG PAPER PRODUCTS
1630 CANAL STREET CHICAGO, ILL.

PAPERS

XUM

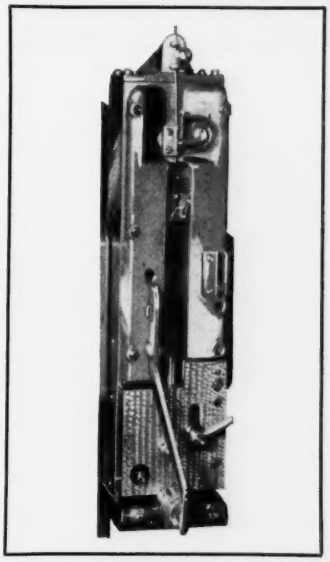
MONITOR BOX STITCHERS

LATHAM MACHINERY CO.

1143—1153 FULTON ST., CHICAGO

MANUFACTURERS of a Complete Line of Automatic Container Stitchers . Hand-Fed Container Stitchers . Automatic and Hand-Fed Suit Box Stitchers . Arm and Table Stitchers . Corner Stitchers . Multiple Head Stitchers . Special Stitchers for every purpose . . .

Everything from milk bottle caps to giant shipping drums can be stitched quicker, better, and more economically with Monitor Box Stitchers.



No container is too big or bulky—too tiny or delicate to be handled in less time at less cost on these fast, accurate, power-driven machines.

Driving and clinching a strong staple-stitch with never a miss or tear, Monitor Box Stitchers turn out sturdy, rigid containers for shipping, storing, display, or merchandising purposes.

What you see on the following three pages is merely a hint of the many things that can be done on Monitor Stitchers, being typical of the work of such prominent Monitor users as: Kellogg Co., Postum Co., Campbell Soup Co., Van Camp Packing Co., Stewart Warner Corp., Swift & Co., National Biscuit Co., Montgomery Ward & Co., Procter & Gamble Co., The Simmons Co., Beechnut Packing Co., Pittsburgh Plate Glass Co., Cluett Peabody & Co., Karpen Bros., Loose-Wiles Biscuit Co., Grigsby-Grunow Co., H. J. Heinz Co., Hershey Chocolate Co., J. F. Jelke Co., T. A. Snider Co., and hundreds of others.

New MONITOR Narrow Stitching Head

High speed, easy adjustments, and rugged, simple construction make the new Monitor narrow stitching head the last word in design and performance. This advanced style in stitcher mechanism permits more free space between the head and the clincher than any other machine, which facilitates the feeding of boxes and increases production. The narrow head also allows greater visibility—another aid to faster work and lower time costs. The output on Monitor machines of this type is limited only by the skill of the operator. Upkeep is negligible as there are no small, delicate parts to get out of order . . . . . No matter what kind of boxes you use or make, and irrespective of your present equipment, it's only logical that you should write to know how, why, and if you can do the job better and cut costs with Monitor Box Stitchers.

MONITOR

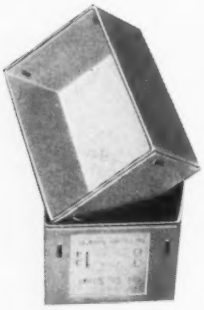
Branch Offices

NEW YORK — PHILADELPHIA — BOSTON
28 W.23rd St. 1020 Lafayette Bldg. 185 Summer St.

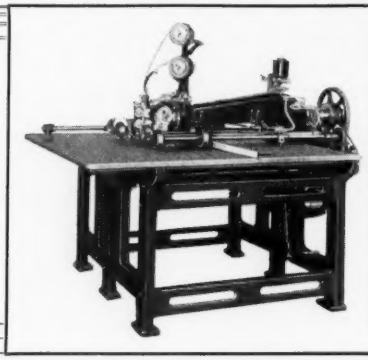
***Pacific Coast Agents:* H. W. Brintnall Co., 51 Clementina St., San Francisco, Cal.; 418 Boyd St., Los Angeles, Cal.; 419 First Ave., South, Seattle, Wash.**

XUM

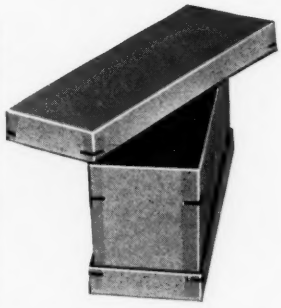
All Types of Boxes Quickly and Economically Stitched on MONITOR Machines



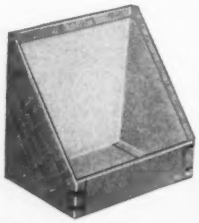
● Hardware screw and bolt container stitched on No. 20 Monitor Box Stitcher.



Monitor No. 85 Automatic Container Stitcher for stitching regular slotted containers, either fibre or corrugated. Cuts production costs . . . . produces a neater box with staples evenly spaced—every box alike—and neat tie stitches at the corners if desired. Drives a single row of staples, a double row, or a single row with a tie stitch at each corner. Write for production figures, list of users, and samples of work done on the No. 85.

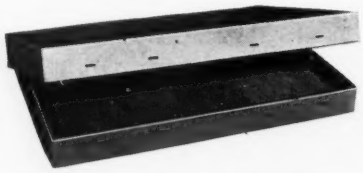


● Hardware packing box stitched on No. 93 Monitor Corner Stitcher.



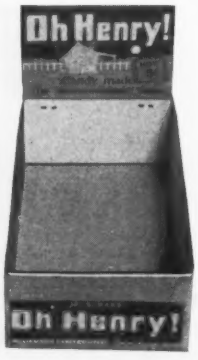
● Display box stitched on either the No. 92 or No. 93 Monitor Corner Stitcher.

● Another type of hardware box stitched on No. 20 Box Arm Stitcher.

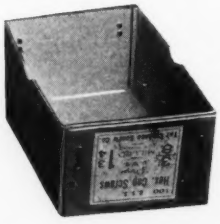


● A very durable special box for wearing apparel, stitched on No. 20 Monitor Box Stitcher.

● Regular automatic suit box. Can be stitched on No. 20 Monitor Stitcher or on Monitor Automatic Suit Box Folder and Stitcher.



● Display box stitched on No. 20 Monitor Display Box Stitcher. The display card is stitched into the box with the aid of an attachment at a rate of 8000 to 12,000 per day.



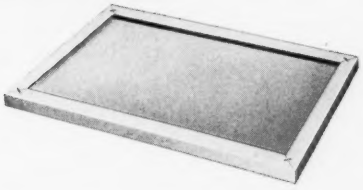
● Rugged container for packaging cap screws, as used by the Chicago Screw Co. Stitched on No. 20 Box Arm Stitcher.

● Lid for a special treasure chest box, manufactured by W. C. Ritchie & Co. Stitched on No. 93 Monitor Corner Box Stitcher. Note the neat, flat-clinched staples.

LATHAM MACHINERY COMPANY MONITOR HEADQUARTERS: CHICAGO, ILL.

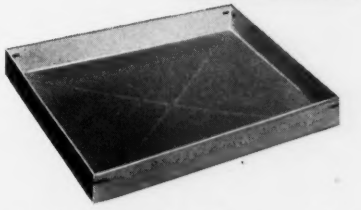
XUM

Just a Few Samples of what a MONITOR can do



● Special display box stitched on Monitor No. 20 Box Stitcher equipped with special arm.

● Monitor No. 222 Bottom Stitcher showing new narrow stitching head that permits greater visibility and allows more space between the head and the clincher than any other machine. Stitching is done automatically, the operator's attention being focused on the manipulation of the box. This method of packaging enables you to store the boxes flat in a small space and make them up as needed. Any one can stitch 1500 to 3000 cartons a day on this compact, efficient machine.



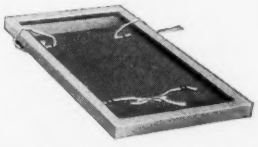
● Another type of caddy or container lid. This lid has no overlapping flap and is stitched on Monitor No. 93 Corner Stitcher.

● Bundles of jar rings held together by a wide steel band. This work done on Monitor Special Jar Ring Stitcher.

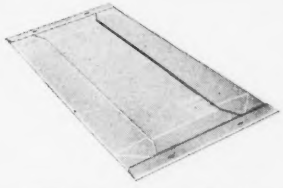
● Display cards with articles attached by stitches made on Monitor Special Stitcher No. 203.

● Example of attaching a ring to a box as a hanger. Work done on Monitor No. 20 Box Stitcher.

● Milk bottle cap with Monitor stitch which is used as handle or pull. Stitched on multiple head machines equipped with 3 to 10 heads.



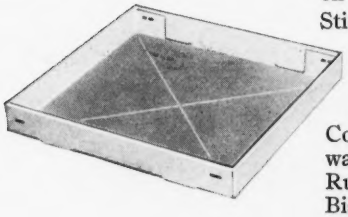
● A wearing apparel box with stitched-in tapes for shipping such items as shirts, underwear, etc. Stitched on Monitor Special Double Head Tape Stitcher.



● A different type of automatic suit box stitched on Monitor No. 20 Box Stitcher equipped with suit box table or on Monitor Automatic Suit Box Folder and Stitcher.

● A caddy or container lid with flaps stitched on Monitor No. 20 Arm Stitcher.

● Another type of suit box stitched on No. 20 Monitor Box Stitcher.



Among the prominent Monitor users are concerns like Philadelphia Storage Battery Co., P. F. Corbin Division of American Hardware Corp., International Shoe Co., LaCrosse Rubber Mills Co., Servus Rubber Co., Sawyer Biscuit Co., Kimble Glass Co., Dry-Zero Corp., Victor Mfg. & Gasket Co., New England Panama Hat Co., Climax Mfg. Co., Shelby Spring Hinge Co., American Lace Paper Co., etc.

LATHAM MACHINERY COMPANY — MONITOR — HEADQUARTERS: CHICAGO, ILL.

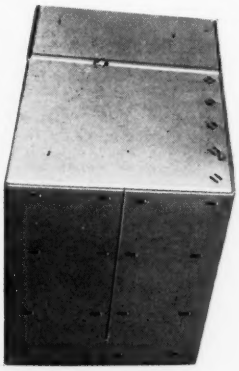
Thousands of Boxes a Day —any size, shape, or bulk— at savings of 10 to 60%

● A regular slotted shipping container showing the manufacturer's seam stitched on the No. 85 Monitor Automatic Box Stitcher with a tie stitch at each corner. The bottom also illustrates the stitching done on Monitor No. 22 and No. 32 Bottom Stitchers.

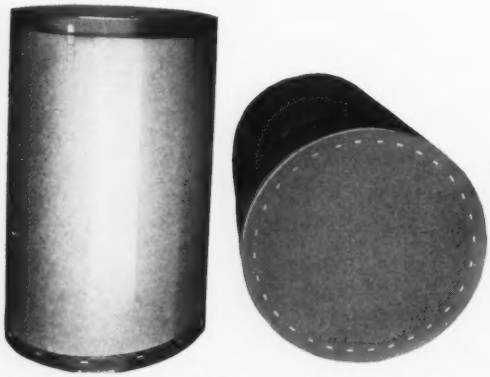
. . . a new multiple unit for special stitching

The new narrow Monitor stitching head has also been developed and perfected for use on multiple head stitching machines. Its stamina and efficiency now make multiple units the most economical means of doing many kinds of special work with speed and precision . . . . . The illustration shows just one of the many multiple machines designed and produced in the Latham plant. Bring your stitching problems to Latham's engineers for authoritative recommendations. Oftentimes a multiple head stitcher is the correct solution to your problems.

● A shopping bag with rope handles stitched to the bag on Monitor No. 20 Shopping Bag Stitcher.



● Another regular slotted container. The manufacturer's seam can be stitched on any Monitor regular arm stitcher or on Monitor No. 85 Automatic Box Stitcher. The bottom stitching was done on the No. 22 Bottom Stitcher.



● Shipping drum showing a 26-gauge galvanized metal band stitched to the fibre on Monitor No. 40 Box Stitcher. The right-hand view shows the same drum with lid stitched on Monitor No. 32 Stitcher.

HERE are just a few of the many prominent box makers using Monitor Stitchers for manufacturing their boxes: Kieckhefer Container Co., Downing Box Co., Hummel & Downing Co., Kansas City Fibre Box Co., Robert Gaylord, Inc., Robert Gair Co., Hinde & Dauch Paper Co., Evans Fibre Box Co., Wisconsin Container Corp., American Box Board Co., Atlas Box Co., Bird & Son, Inc., Inland Box Corp., A. George Schulz Co., Container Corp., The Mengel Co., Lawrence Paper Co., Iowa Fibre Box Co., Sandusky Folding Box Co., Reliable Paper Box Co., Box Makers, Inc., J. C. Fitzpatrick, Chicago Fibre Box Co., Lanzit Corrugated Box Co., River Raisin Paper Co., Eggerss-O'Flyng Co., and Eddy Paper Corp.

LATHAM MACHINERY COMPANY MONITOR HEADQUARTERS: CHICAGO, ILL.

RIEGEL'S

Protective and Transparent

PAPERS

for Every Need

RIEGEL PAPERS

THIS portfolio contains samples of RIEGEL PAPERS, made by The Riegel Paper Corporation, New York, N. Y. Each grade represented here is used for one or more important purposes. Perhaps you will find here a paper more adaptable to your particular requirements than one you are now using, or possibly the uses we list below may suggest a way in which our papers can be of help in solving a packaging problem for you.

		QUALITIES	USES
1.	**EMBOSSED**	Attractively embossed in a number of designs. Semi-transparent.	Box leafs, box wraps, bags, stocking wraps.
2.	**RIEGELINE**	Transparent, easily sealed, works on standard machines, won't stretch in wet weather or shrink and split in dry.	Bags, envelopes, and package wraps of every description where economy must be combined with transparency.
3.	**RIEGELITE**	Most transparent waxed paper made. Grease-proof, moisture-proof, self-sealing, and highly transparent. Low in cost.	Cake, cookie, cracker and candy wraps. Recently adopted by leading bakers throughout the nation. An ideal bacon wrap.
4.	**ONYX**	Wide range of colors both pleasing and commercially adaptable.	Bottle wraps, liners, medicines, candy cups and dividers, corrugated padding in cracker and other boxes.
5.	**CELOWAX**	Highly moisture-proof. Grease-proof. Self-sealing. Low in cost.	Inner carton wrap. Used in Puffed Wheat, and other packages where moisture must be kept in or kept out and transparency is not needed.
6.	**GREASEPROOF**	Strong, grease-proof and economical.	Meat wrap. Carton liner. Delicatessen meat and grocery stores.
7.	**WAXED AMBER**	Strong, grease-proof, moisture-proof, inexpensive.	Inner carton wrap and liner. Used by National Biscuit and others. A liner for coffee, crackers, etc.
8.	**OPAL**	Grease-proof, economical and strong.	Used as a liner in millions of coffee bags and as a carton liner for products containing grease or oil.

Made by

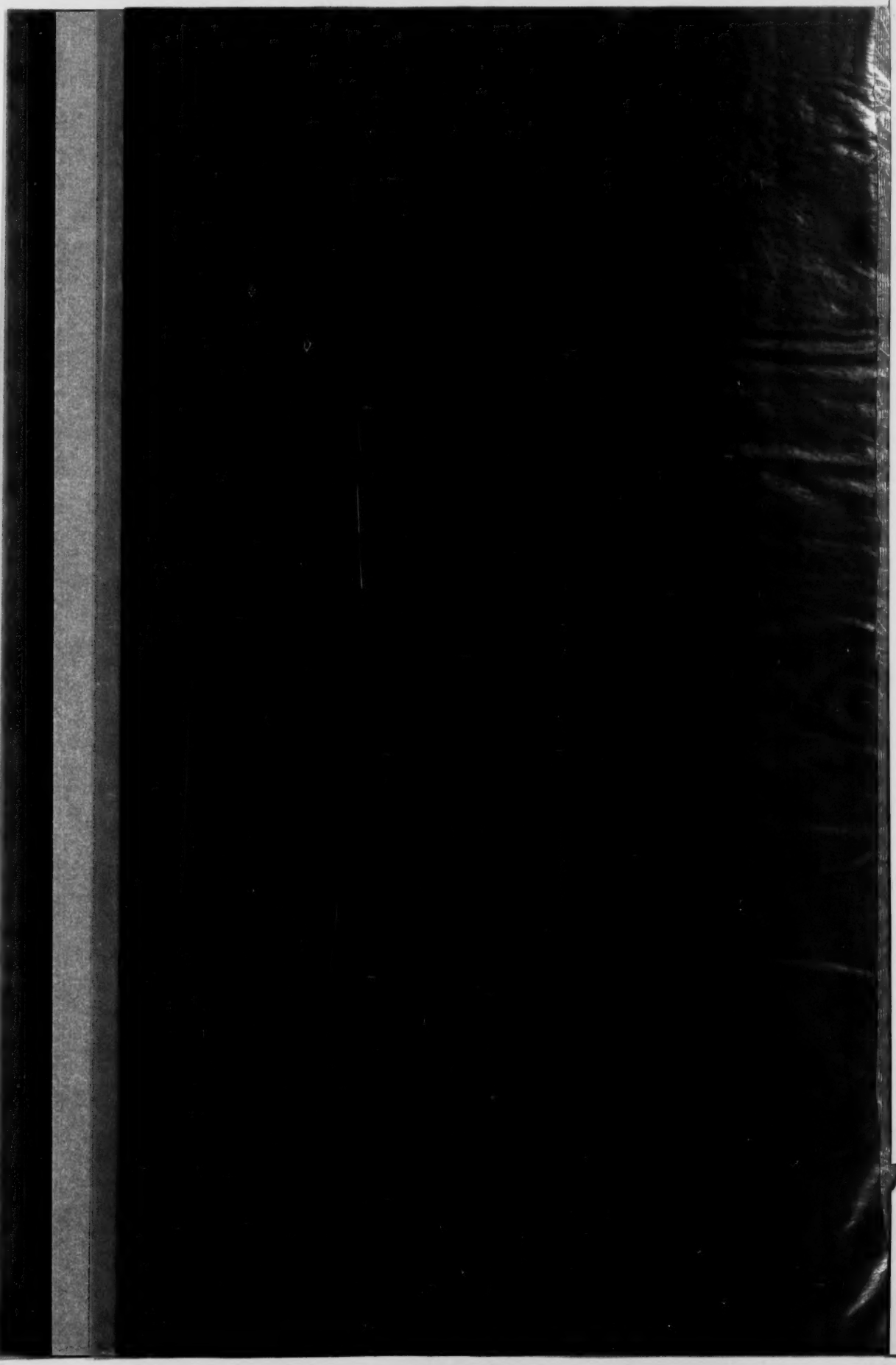
The RIEGEL PAPER CORPORATION

(FORMERLY THE WARREN MANUFACTURING CO.)

342 MADISON AVENUE, NEW YORK, N. Y.

XUM

8 7 6 5 4 3 2 1 Double Sheets — Insert hand between fold to note transparency of single sheet



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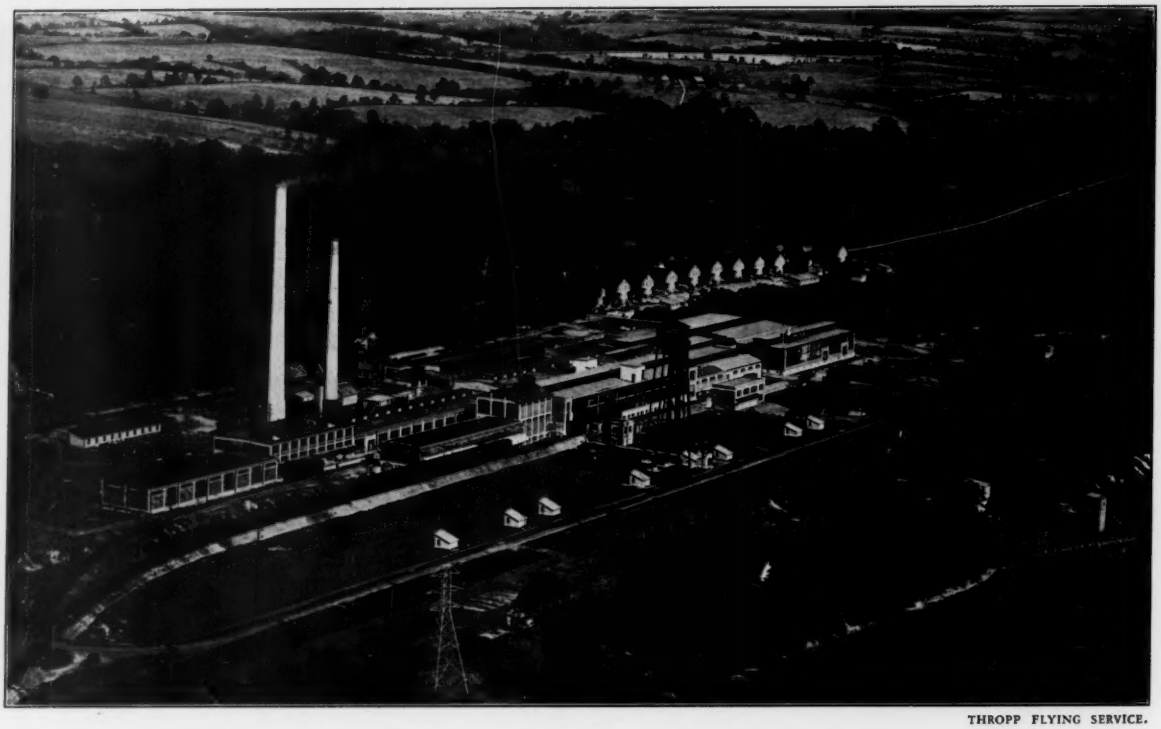


THROPP FLYING SERVICE.

Airview of the Milford, N. J. Plant of

The RIEGEL PAPER CORPORATION

Executive Offices
342 MADISON AVENUE
New York, N. Y.

The five paper machines in this one plant produce over one hundred thousand pounds of Riegel Papers every twenty-four hours. Interesting to the buyer of Riegelite is the fact that every step in its manufacture is under the control of one management, from the time the pure spruce pulp enters the mill at one end, until it leaves the Converting Department at the other, an excellently finished product of superior merit, plain or printed, in rolls or sheets, ready for immediate dispatch to our many customers.

Our Research Department is at your service to help determine the most efficient protective wrapper for your products. Write for complete information.

New York, N. Y.
342 MADISON AVENUE

RIEGEL'S PAPERS
SINCE 1862

Chicago, Ill.
111 W. WASHINGTON ST.

National Metal Edge Box Co.

330 North 12th Street

Philadelphia, Penna.

PRODUCTS:

Metal Edge Stayers.

Metal Edge Stay.

Metal Edge Paper Box Flats.

Super Fibre and Test Fibre Sulphate Boxboard.

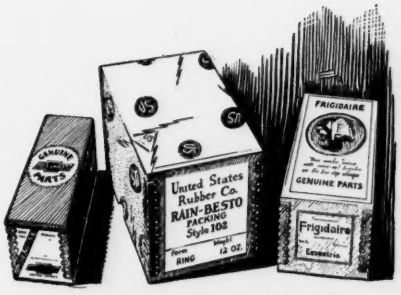
Made-Up Metal Edge Boxes.

Folding Boxes.

Metal Edge Shipping Containers.

Metal Edge Mailers for Liquids and Solids.

General Paper Box Specialties.



Metal Edge Boxes Are Used by Many Nationally Known Companies

STYLES AND SIZES:

The strength of Metal Edge corners, combined with crease scored construction of all edges, gives containers that will resist abnormal crushing and bursting tests.

The standard styles are Telescope, Hinge Lid and Display, but Boxes can be furnished of any special construction to take care of given needs.

Boxes are used for the packaging of all types of products and are made in all sizes.

METAL EDGE METHOD OF PACKAGING:

The Boxes are shipped in the flat and set-up as needed in your plant on a Metal Edge Stayer. This method eliminates the storage space problems and assures your goods always being packed in clean, fresh containers.

The Metal Edge Method of Packaging is now being used by many nationally known companies. Surely if they can see their way to adopt it, it must have merit.

SUPER FIBRE BOXBOARD:

Super Fibre Boxboard is made to our specifications from an All Sulphate stock. It is the strongest boxboard produced today and in a thickness of .040 has a Mullen Test which averages well over 375 pounds per square inch.

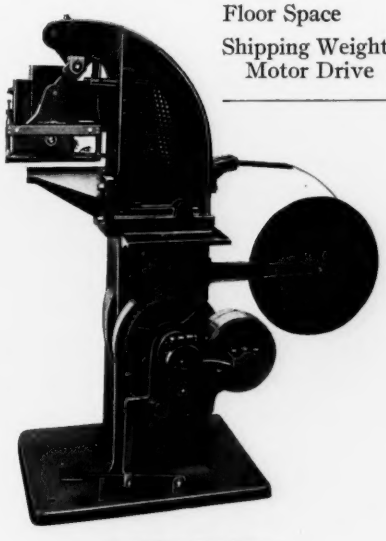
It is furnished in various thicknesses and in the following colors: Natural, White, Red, Blue, Green, Orange, Yellow, Gray and Black.

DESIGNS AND PRINTING:

Metal Edge Box Flats can be furnished in the natural or colored boards or lined with any cover paper, metallic foil, glassine, parchment or grease-proof treated.

We maintain a complete Art and Printing Department and the Box Flats can be either Letter Press printed or Lithographed. We can handle one, two, three or four color printing.

It is a known fact that overprinted Metal Edge Boxes have a real merchandising and advertising value.



Metal Edge Box Stayer

METAL EDGE STAYER SPECIFICATIONS:

The Stayers are built in two sizes: Model "A"—10" and Model "E"—6". The Model "A" will form any Box from one-half to ten inches in depth and the Model "E" any Box from one-half to six inches in depth. Special Stayers can be built for greater Box depth or special application of the Metal Stay. Each Stayer has an Automatic Safety Device built into the head.

Specifications	MODEL A		MODEL E	
	Equipment		Equipment	
	No. 4	No. 5	No. 4	No. 5
Height	5'7"	5'7"	5'5"	5'5"
Floor Space	33"x26"	33"x26"	24"x23"	24"x23"
Shipping Weight Motor Drive	1700 lbs.	1735 lbs.	1280 lbs.	1300 lbs.

METAL EDGE STAY:

The standard Metal Edge Stay is known as 4X Improved and No. 5. The 4X is $^5/_8$" in width and the No. 5 is 1" in width. It can be furnished in the following finishes:

Red, Green, Blue, Purple, Buff, Yellow, White, Black, Tin and Copper.

Write for Full Information on the Metal Edge Method of Packaging.

METAL EDGE THE STRONGEST PAPER BOX

SANITAPE

Transparent or Opaque

for packing

for sampling

medicinal tablets, lozenges, candies and food.

IF you manufacture medicinal, candy or food tablets, lozenges or drops, the efficacy of which depends on their freshness, purity and strictly hygienic condition, pack them in the one thoroughly practical, sanitary and economical way—in Transparent Sanitape. Leading manufacturers are becoming more and more sold on the unique advantages of Sanitape, on the feature of airtight protection in moisture-proof cellulose or waxed impregnated paper; on the desirability of putting up their product so that individual units are available while the remainder of the supply remains untouched and safely sealed; on the remarkable economy of this up-to-the-minute method of packaging—and on the immediate sales impetus Transparent Sanitape gives every product it carries.

Every manufacturer knows the importance of protecting remedial or food agencies from the invisible impurities of the air as well as from the actual dust particles. Sanitape does this by keeping each tablet completely sealed until every individual unit is used. A strip of Sanitape carrying a sufficient number for use during the day may be detached from the supply and carried in the purse or pocket, thus increasing the consumption of the product.

Let us send you a booklet describing the advantages of both the Opaque and Transparent Sanitape and its unusual features.

Ivers-Lee Company

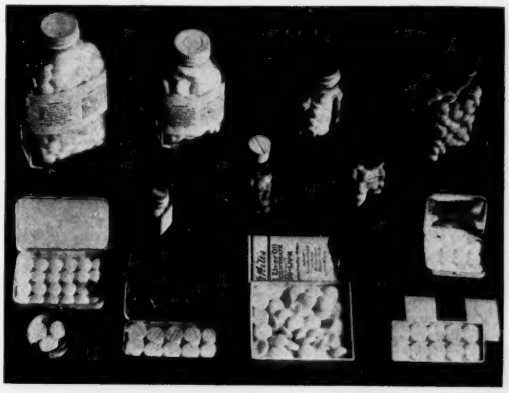
215 Central Avenue, Newark, New Jersey

UNIVERSAL TABLET COUNTING AND PACKAGING MACHINERY

Vacuum Feed Type

In Fig. 1, we show a machine equipped with vacuum feed for the filling of Aspirin tablets in dozen packets. The range of this machine depends entirely on your rate of production. Feeding attachments can be supplied to handle 3, 6, 12, 24 or 30 tablets in one operation and place them directly in the container —so closely that it is impossible to duplicate Ivers-Lee filling precision by hand methods.

The speed of this machine is directly variable to either number of packages per minute, or tablets per package. The machine demonstrated is handling two packages of 12's in each operation and has a speed of 80 to 100 packages per minute.



Gravity Feed Type

Fig. 2 shows the same Universal Tablet Counting and Packaging machine equipped with gravity feeding mechanism and designed for use where bulk filling is required into bottles, boxes, vials, or bags. This machine will also count and fill sealed capsules.

The speed of filling varies with the number of tablets per package.

At 100 tablets per package, the speed is 50 filled units per minute. As the number of tablets per package is decreased, the speed increases up to 130 units per minute.

This machine will line up with your high-speed labelers, cappers and cartoners, working up to 100–130 packages per minute.

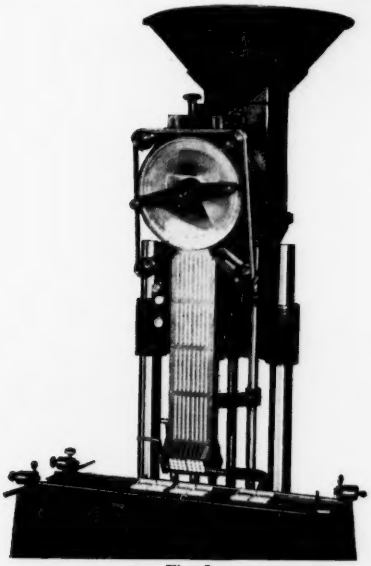


Fig. 1

The Ivers-Lee Universal Tablet Counting and Packaging machines will handle with equal facility coated or uncoated tablets. Various shapes such as oval, round or bean shaped products offer no hindrance to the perfect operation of these machines.

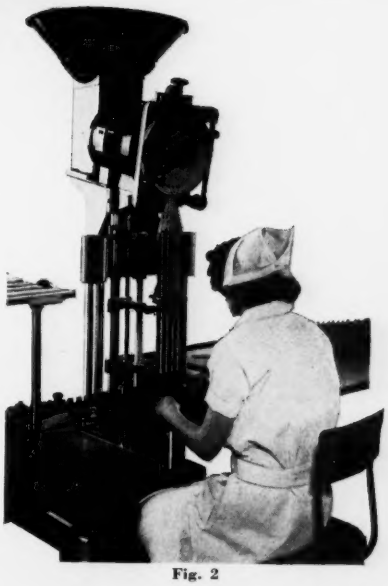


Fig. 2

Ivers-Lee Company

215 Central Avenue, Newark, New Jersey

XUM

YOUR NAME GOES HERE

Protected by U. S. Patents 1706815 and 1784880

If you sell a product that is dispensed with a spoon—the **KLIP-SPOON**—with your name stamped on the name plate—offers many outstanding merchandising advantages.

The **KLIP-SPOON** is adjusted to fit all standard bottles and can be quickly and securely snapped on closures; or placed loose in the carton containing the bottle.

6 Ways in which the KLIP-SPOON Stimulates Sales

A Daily Reminder of your Product

The **KLIP-SPOON** is kept in the medicine cabinet. Every member of the household has occasion to use the cabinet at least once a day and is bound to see your name on the **KLIP-SPOON.**

Its Usefulness Builds Good Will

KLIP-SPOONS can be supplied in teaspoon and tablespoon capacities which conform with the standards recommended by the U. S. Bureau of Standards. Thus, through the use of **KLIP-SPOONS,** accurate and uniform dosage is assured.

Creates a Preference for Your Product

A spoon of the correct size—given free with each bottle—will appeal strongly to consumers, and cause them to ask for your product because of this additional feature.

Provides a New Talking Point

A new talking point is often the most effective way to stimulate sales. The **KLIP-SPOON** can be played up in many ways—in both printed and oral salesmanship.

A Permanent Advertisement

The usefulness of the **KLIP-SPOON** and its hygienic features make it a year-round advertisement for your product. It will be kept and used indefinitely.

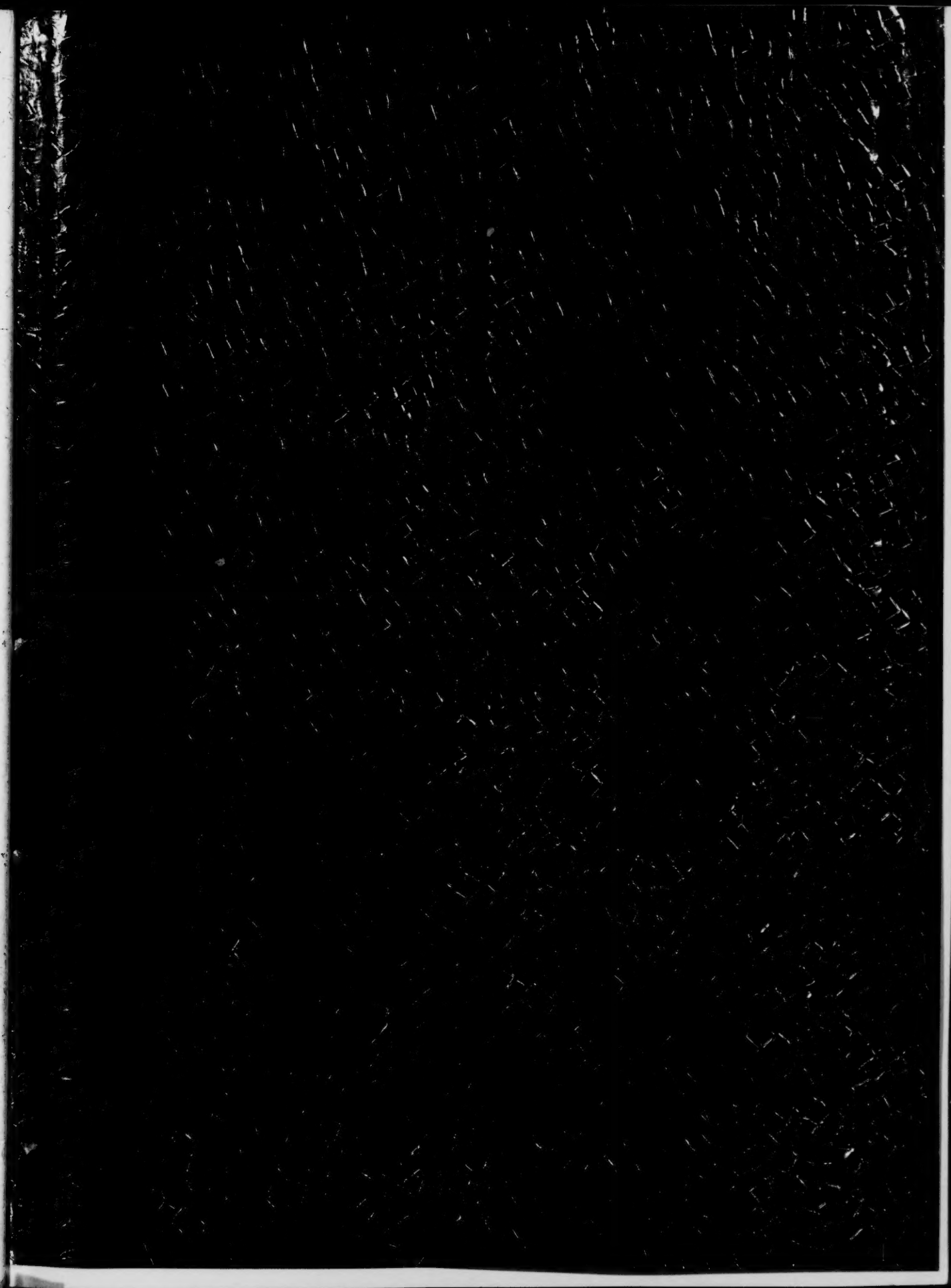
A Sales Aid for the Dealer

The **KLIP-SPOON,** embossed with your name, can also be **HANDED OUT** as a good-will builder through retail druggists. For such distribution—if desired—the name of the dealer can be imprinted on the glassine envelope containing the **KLIP-SPOON.**

Detailed Information and Samples Gladly Sent Upon Request.

KLIP-SPOON, INC.

299 BROADWAY, NEW YORK



XUM

FOILETTE

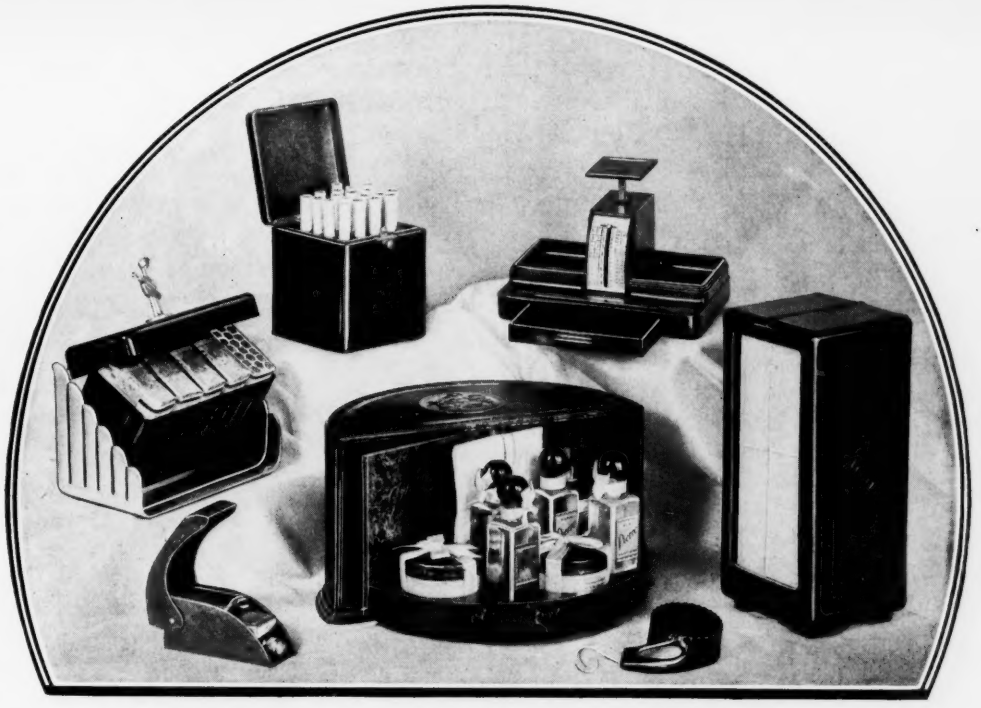
PACKAGING stylists dictate metal surfaces for 1932. . . . . For the choosey, who insist on something that is different than the common metal surfaces, Kupfer has created *FOILETTE*. . . . . It presents a selection of six unusual metal colors in hammered effects. . . Sample sheets of this, or any others of the more than three thousand decorative papers in the complete line are yours for the asking. Bring your packaging problems to Kupfer. . . . . .

KUPFER BROS. CO.

NEW YORK
2 Astor Place

CHICAGO
145 W. Austin Ave.

Mills: Northbridge, Mass.



REJUVENATE YOUR LINE

with new ideas . . made of new materials . . distinctive, durable, colorful . . ultra-modern . . and create new interest in your product?

Our twenty-five years experience in plastic molding insures your getting real service.

We invite you to look over our achievements . . some of which are shown above . . investigate our facilities, personnel, and financial responsibility and then decide for yourself.

NORTHERN INDUSTRIAL CHEMICAL CO.

11 Elkins Street — EST. 1907 — So. Boston, Mass.

Bakelite . . Beetle — ***Durez . . Lumarith***

XUM

THE LIQUID CARBONIC CORPORATION

Manufacturers of

O. & J.
Automatic Labeling Machines

National
Semi-Automatic Labeling Machines

General Office: 3100 S. Kedzie Ave
CHICAGO, ILLINOIS

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SAN FRANCISCO, CALIFORNIA
SEATTLE, WASHINGTON

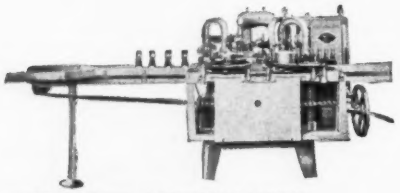
LIQUID CARBONIC CANADIAN CORP., LTD.
MONTREAL, QUEBEC, CANADA

LIQUID CARBONIC CANADIAN CORP., LTD.
WINNIPEG, MANITOBA, CANADA

THE COMPANY

The Liquid Carbonic Corporation founded in 1888 is the world's largest manufacturer of Bottlers Machinery and Carbonic Gas. It recently acquired the O. & J. Machine Company, Worcester, Mass., and the National Labeling Machine Company, Long Island City. The products of both these companies are now being manufactured by the O. &. J. Labeling Machine Company which is being operated as a subsidiary of the "Liquid" at Worcester, Mass.

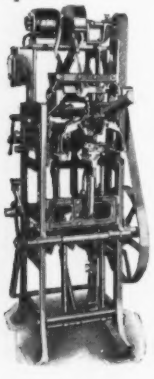
PRODUCTS



O. & J. "SINGLE" AUTOMATIC ROTARY LABELER

The "Single" O. & J. Labeler is a rotary type machine and is completely automatic. It has a capacity of 80 containers per minute or 3200 dozen containers per 8-hour day.

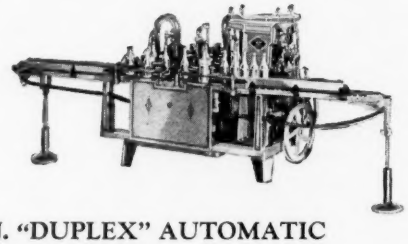
There are eight heads and top grips for receiving and holding the bottles. By reason of these eight heads the machine operates at a comparatively slow speed.



NATIONAL "MIDGET" LABELER

This machine is a smaller and simpler model of the "Standard" type labeler also shown on this page. It will affix a single label on anything from a ½-oz. vial up to a quart bottle, provided the labels do not go more than half way around the bottle.

This machine has a capacity of 40 containers per minute or 1600 dozen containers per 8-hour day.

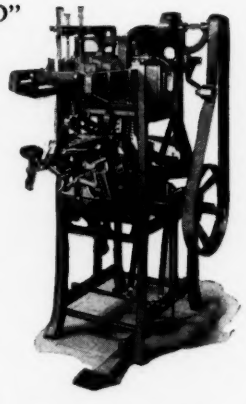


O. & J. "DUPLEX" AUTOMATIC ROTARY LABELER

The Duplex Labeler is a large capacity rotary type machine, completely automatic. It will handle 120 containers per minute or 4800 dozen containers per 8-hour day.

The operation of this machine is similar to that of the "Single" machine described above, the extra capacity being obtained by having ten heads instead of eight on the turntable, and two points at which labels are affixed to the containers.

NATIONAL "STANDARD" LABELER



This is a hand fed or semi-automatic labeling machine. With it practically any size bottle may be labeled, with either body or neck labels or both.

When equipped with a foiling attachment, foil may also be applied.

This machine has a capacity of 40 containers per minute or 1600 dozen containers per 8-hour day.

SERVICE RENDERED BY REPRESENTATIVES

The labeling machine division of the "Liquid" can help you increase the efficiency of your labeling operations—by speeding up production—by more accurate labeling (especially on difficult labeling jobs) by economizing through fewer machines and less manpower.

One of our qualified labeling machine representatives will be glad to call and discuss your labeling problem. He has facts and figures on comparative labeling costs, savings in time, money and labor on various labeling operations.

Write for Catalog

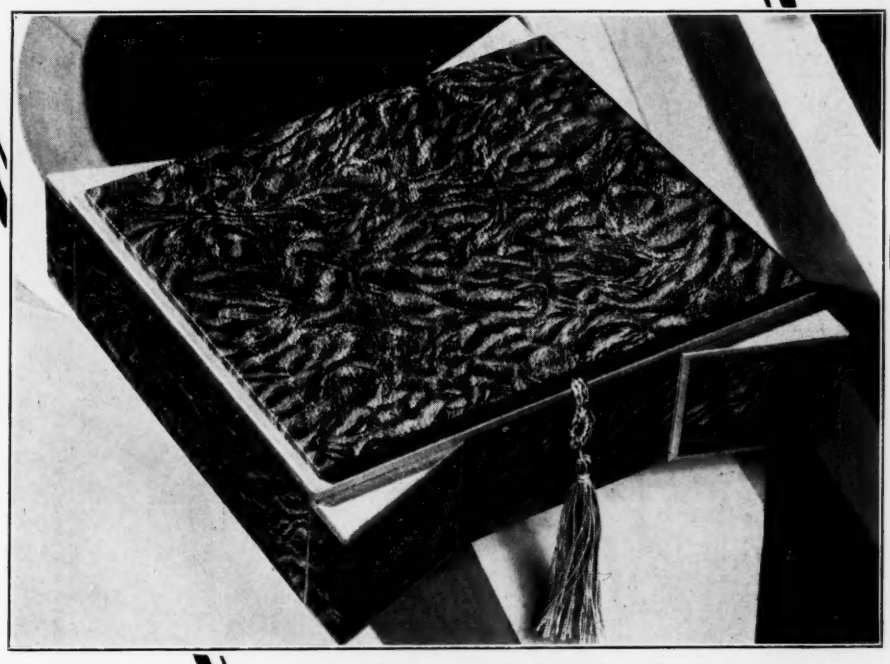
We will be glad to send you, on receipt of a request on your letterhead, a copy of our booklet, "Labeling Machines." It contains a vast amount of valuable information on labeling equipment.

GIVE YOUR DE LUXE PACKAGE

THE IRRESISTIBLE APPEAL OF

KERATOL

The "coated" fabric that transforms paper boxes into Gorgeous Gift Containers



SCORES OF NATIONALLY KNOWN PRODUCTS HAVE GAINED ADDED PRESTIGE IN KERATOL "RE-USE" CASES

On display at retailers, flanked by competitive merchandise, your Keratol covered gift box proves its superior appeal. Eyes that see it and fingers that touch it react to its obvious quality . . . proven in its use for cosmetics, travel kits, silver, bridge sets, shaving aids, sewing kits, jewelry, stationery and many other products.

BETTER BOX MAKERS KNOW AND RECOMMEND KERATOL FOR BEAUTY AND PROTECTION

Important to you is the knowledge that Keratol presents no production problems to the qualified box maker. It costs no more than the better papers, and is far superior in appearance and ability to withstand display or handling.

washable

•

moisture-proof

•

scuff-proof

GENUINE KERATOL GUARANTEED

available in more than 100 patterns

•

made in one, two, or more colors.

Send for information to

THE KERATOL COMPANY

380 SOUTH STREET

NEWARK NEW JERSEY

XUM

JOHN W. LITTLE COMPANY

190 EXCHANGE STREET

PAWTUCKET RHODE ISLAND

Makers of Fine Labels for 46 Years

LABELS

GUMMED
UNGUMMED
DIE-CUT

DISPLAY CARDS

BOX-WRAPS
BANDS

SLYDINS

HANG TICKETS
TAGS

PRINTED SPECIALTIES

YOUR PACKAGE!

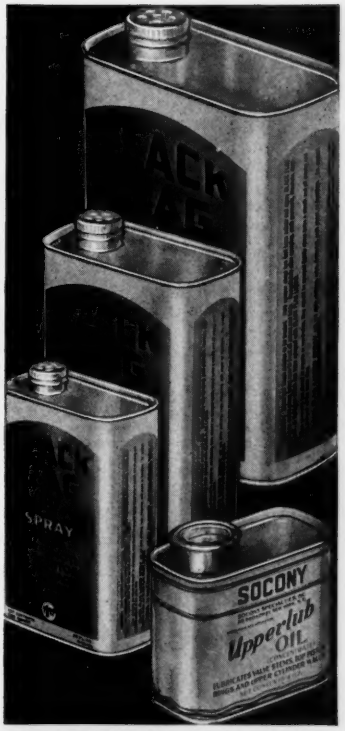
Is it Smart?

THE DEALER WANTS TO KNOW!

HE WEIGHS Container value and "effect" upon a trade whose eyes pick out nicely packaged things . . then buys accordingly . . again and again.

Smartness . . Style . . attach to all "EMPECO"-MADE Containers . . a sales-compelling atmosphere . . buying impulses that only skill in artful design and color definition can bring about.

The Quality invitation of your product is impressed upon the trade by "EMPECO" Quality Packaging.



METAL PACKAGE CORPORATION

Sales and Executive Offices: 110 E. 42nd St. New York City

PLANTS ▸ New York City · Baltimore · Brooklyn · Chicago

THE FISCHER CAN COMPANY DIVISION

Hamilton, Ohio

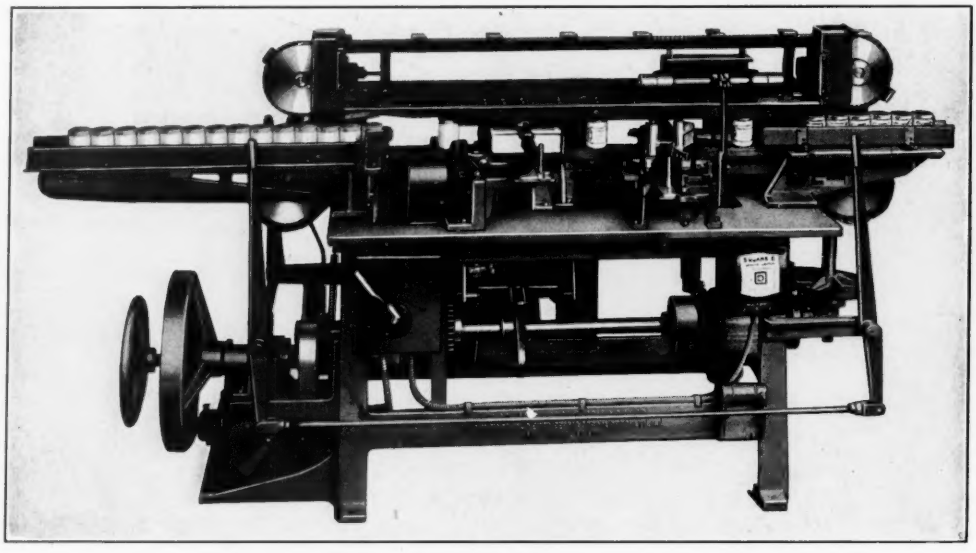
XUM

McDONALD Straight AUTOMATIC

STRAIGHT THROUGH → STRAIGHT THROUGH → STRAIGHT THROUGH → STRAIGHT THROUGH

THESE LABELING MACHINES are STRAIGHT-LINE type (not rotary). They automatically feed the package, or container, and apply paper labels on bottles, boxes, etc.

All labelers are specially designed, "tailor made" machines, built to fit your particular type and size of package. They are not stock machines and do not have standard movements that are very often a hindrance to speed and to first class, accurate, clean labeling. For ten years they have labeled many nationally known products and are thoroughly established, and noted for their extreme simplicity, speed and perfect workmanship.



All-Around Labeler

ALL-AROUND LABELER (ABOVE)—Applies one label all around the body, or the body and neck of bottles. It is also of the STRAIGHT-LINE design employing the latest and most improved method for applying gum over the entire surface of the label and for lapping it accurately.

SPOTTER—Labels round bottles with raised lettering by automatically feeling the letters and turning the bottle to the proper position before applying the label. Your trade mark in the glass means a great deal if you can properly and economically apply the label in the right place. This machine does it.

Important Features: Does not require inspectors to complete the job. Adjustable for different sizes in 10 minutes. Gums the entire surface of the label.

Specifications—Conveyors—34 in. above the floor. Length—7 ft. overall. Weight—1400 to 2000 lbs. Motor—1/2 H. P.

McDONALD ENGINEERING CORP.

220 VARET STREET, BROOKLYN, N.Y.

LOS ANGELES 443 So. San Pedro St. · LONDON Windsor House, Victoria St. S.W.1 · CHICAGO 1112 Merchandise Mart

Line LABELERS

"WEEKS"

STRAIGHT THROUGH → STRAIGHT THROUGH → STRAIGHT THROUGH → STRAIGHT THROUGH

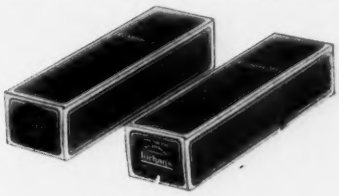
DIFFERENT FROM ALL OTHERS IN LABEL APPLICATION

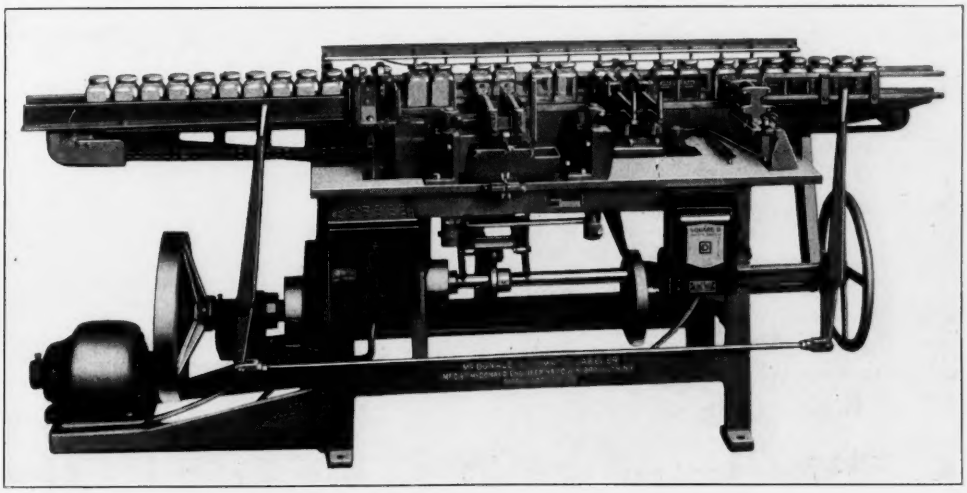
McDonald labeling machines do not employ any intermediate means for transferring a gummed label from the label magazine to the surface to be labeled. The magazine itself deposits the label on the package. Therefore, the labels are registered accurately and are applied in a straight, clean manner.

SINGLE LABELER—This machine applies spot labels on all packages, and one label on three sides. A neck label attachment may be added when desired. Speeds range from 30 to 80 per minute.

FRONT AND BACK LABELER—Applies two labels simultaneously on opposite sides or two labels all around the container, or one label if desired. Speeds range from 30 to 80 per minute.

DUPLEX LABELER—Is both of the above types but labels two containers or packages simultaneously without increasing the machine speed. It is two labelers in one and is a slow running, long-lived machine with a labeling speed up to 144 containers or 288 labels per minute. It is designed to keep pace with modern high speed cartoning and wrapping machines and eliminates the necessity of adding another labeler, another operator and additional floor space for doubling your production.





Duplex Labeler—Labels Two Containers Simultaneously

XUM

Millions of WOMEN know this keymark . . .

. . . and know what it means

The Paterson Vegetable Parchment sheet is known in countless homes of your own customers throughout America. Women know it from their experience with Patapar. Using it daily in cooking, they have found out that it is grease-proof, insoluble, tasteless and odorless.

Moreover, during 1932, nearly 10,000,000 readers of The Saturday Evening Post, Collier's, Good Housekeeping and McCall's will have the Patapar story told to them.

They will be made to understand that any food product wrapped in a sheet bearing the Paterson Vegetable Parchment Keymark enjoys the best protection that money can buy.

Give your product one more "quality" selling point by wrapping in Paterson Vegetable Parchment and insist that it bear the Keymark —you're entitled to this Keymark Service without charge, on all printed wrappers.

Hundreds of leading brands of packaged foods now carry this Keymark on their wrapper. This nationally advertised symbol of wrapper protection comes in two sizes . . ¾ inch or 1 inch high. It will be included anywhere on your printed wrappers, at no extra cost. It is a simple, effective way of telling your customers that your product is carefully protected. Ask our representative or write direct —

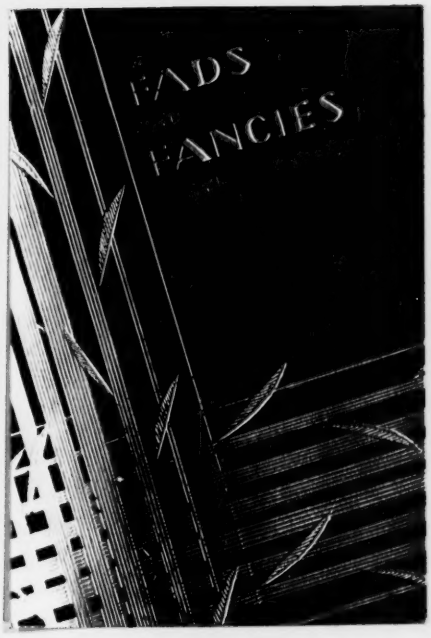
Paterson Parchment Paper Company
Passaic, New Jersey
Sales Branches: Chicago, San Francisco.

PATERSON-*Genuine*-VEGETABLE-PARCHMENT

Commercial Patapar

THE INSOLUBLE, GREASE-PROOF WRAPPER FOR QUALITY PRODUCTS

for the unusual in box wraps & seals Consult Krause



THE sample attached to this page is a specimen of the unusually striking box-wraps produced by this organization.

Please note especially the density of the color of the background and the beautiful gloss that is obtained by our process.

This unique treatment for box-wraps is an addition to our line of high-grade METASEALS and regular seals for use in conjunction with cellophane wrapping and package decoration.

Write for samples and full information.

RICHARD M. KRAUSE, INC.

304 East 23rd Street NEW YORK, N. Y.

XUM

DEVELOPING NEW OUTLETS with National Tubes

SCORES of well-known products, which until recently have been sold in the traditional manner, are now being put up in collapsible tubes.

Why? Because these containers offer new sales opportunities—new merchandising methods—and enable manufacturers to reach new groups of consumers.

There are waiting markets for hundreds of products that are not now capitalizing the merchandising features of Collapsible Tubes.

If you make a product in semi-liquid or paste form, let us show you how economically and effectively it can be put up in National Collapsible Tubes.

THE CAPTIVE CAP

This patented device—exclusive with National Tubes—is available to manufacturers who wish to insure their tubes being kept closed when not in use—and thus build extra good-will for their product.

Ideal Containers for Many Products

IN addition to their excellent merchandising features National Collapsible Tubes make ideal containers, because they give perfect protection to contents, are absolutely sanitary, easy to use, easy to pack and ship, practically unbreakable, and decidedly economical.

Furthermore, National Tubes can be given a special top coat which is acid alkali-resisting and practically assures complete protection.

Investigate the advantages of National Tubes as containers for your product. We shall be glad to consult with you and give you all the information you desire with reference to the use of tubes as containers.

NATIONAL COLLAPSIBLE TUBE CO.

PROVIDENCE **RHODE ISLAND**

New York Office—331 Madison Ave., Telephone Murray Hill 2-1745

Manufacturers of Pure Tin Tubes

Foreign Representative for "Captive Cap"

BETTS & CO., Ltd. . . . London . . . N. I.

XUM

LILY TULIP CUP CORPORATION

CHANIN BUILDING

NEW YORK, N. Y.

THE attractiveness of a package, its sales-compelling character, outrank any other factor. The right combination of design and color will ease the way to greater sales, anywhere, anytime.

Tulip NESTRITES have met a need, and filled it —extraordinarily rigid, pleasingly proportioned, completely sanitary, they have an instant eye-appeal. Those alert food packers whose names appear on the containers illustrated on the opposite page, have realized the strength of this appeal and are cashing in on it.

Made of high quality, 100% sulphite paper, NESTRITES will not only keep food products fresh and wholesome, but will also prevent odors from other food stuffs contaminating the full flavor and aroma of perishable items.

PACKAGE DESIGN AND TECHNICAL SERVICE

We maintain an art staff to create new designs for manufacturers who are planning to use NESTRITE containers for marketing their products.

We also have an experienced staff to help solve the technical problems that might be encountered in adapting NESTRITE containers to the packaging needs of various products.

NESTRITES SAVE SPACE

Wholly aside from the practical advantages of NESTRITES mentioned previously, the factor of space saved has played a big role in their success.

Because of the nesting feature, they take up only one-fifth as much space as non-nesting, cylindrical containers.

NESTRITE PACKAGE FILLING AND CAPPING MACHINES

Besides being able to supply manufacturers with containers embodying many exclusive and economical features, we can furnish machines for filling, capping and sealing NESTRITES. These machines are suitable for plants with either large or small production.

SOME OF THE INDUSTRIES THAT CAN USE NESTRITE CONTAINERS TO ADVANTAGE

Advertising Agencies
Butter, Cheese and Egg Dealers
Candy Manufacturers
Cheese Manufacturers
Cocoa Packers
Coffee Roasters and Packers
Dairies (Manufacturing)
Food Product Distributors
Flour Mills
Oyster and Sea Food Packers
Honey Packers
Ice Cream Manufacturers
Meat Packers
Nut Importers
Peanut Roasters
Seed Packers
Sugar Refiners
Tea Packers
Wholesale Grocers
Frozen Food Packers and Distributors

XUM

LILY TULIP PRODUCTS

XUM

Sales-Building Cans

MECHANICALLY perfect cans, lithographed in rich, permanent colors, are always effective sales aids. Many nationally known products owe their success in large measure to the appeal of Burdick Cans.

Someone has said that "half of the buyer's can requirements is the company behind the production of his container."

For almost half a century we have been specializing in the manufacture of small and medium sized cans; as a result, we have acquired a wealth of experience in this highly specialized field and can offer you the services of a capable staff of package experts and designers.

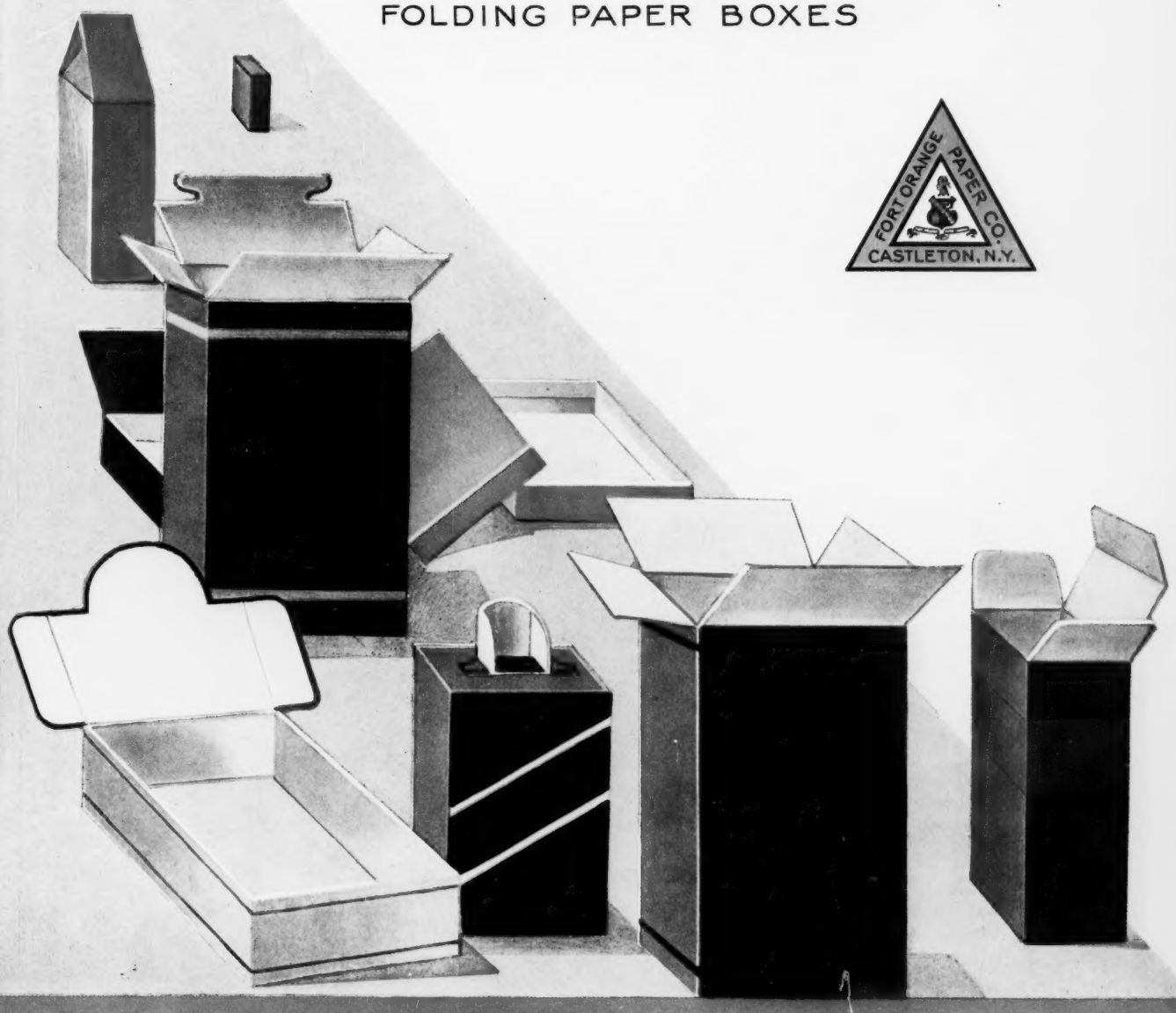
Submit your container problem to us and let our experts cooperate with you. There's no obligation.

BURDICK & SON, Inc.

ALBANY, N. Y.

FORT ORANGE PAPER CO.

ESTABLISHED 1858
CASTLETON-ON-HUDSON, N.Y.
FOLDING PAPER BOXES



A NOVELTY YESTERDAY
A NECESSITY TODAY

We have in our model plant hundreds of highly trained specialists working day and night with this great objective in view,

QUALITY AND SERVICE

THREE MILLIONS DAILY

XUM

FORT ORANGE PAPER COMPANY

CASTLETON ON HUDSON, NEW YORK

ONE of the three largest plants in the world devoted exclusively to the manufacture of Folding Paper Cartons, embracing the entire process of manufacture from the making of the board to the finished carton. Situated in the Capital District of New York State, with shipping facilities of the New York Central's noted "Water Level Route" or export the World over by the "Deeper Hudson."

Capacity 3 Millions Daily

Established 1858

WIRZ TUBES, Handmaidens to Modern Merchandising

ATTRACTIVE, convenient, self-dispensing, Wirz Collapsible Tubes render a profitable service to manufacturers of shave creams, toothpastes, cosmetics, food products, pastes, ointments, and other powdered and granular products.

Have you tried this sales-stimulating service of design and manufacture?

A. H. WIRZ, Inc.

Established 1836

CHESTER, PENNSYLVANIA

Collapsible Tubes *Metal Sprinkler Tops*

NEW YORK
50 E. 42nd St.

CHICAGO
Ry. Exchange Bldg.

LOS ANGELES
1231 E. Seventh St.

Gold, nickel and bakelite sprinkler tops

XUM

NEW YORK
50 E. 42nd St.

CHICAGO
Ry Exchange Bldg.

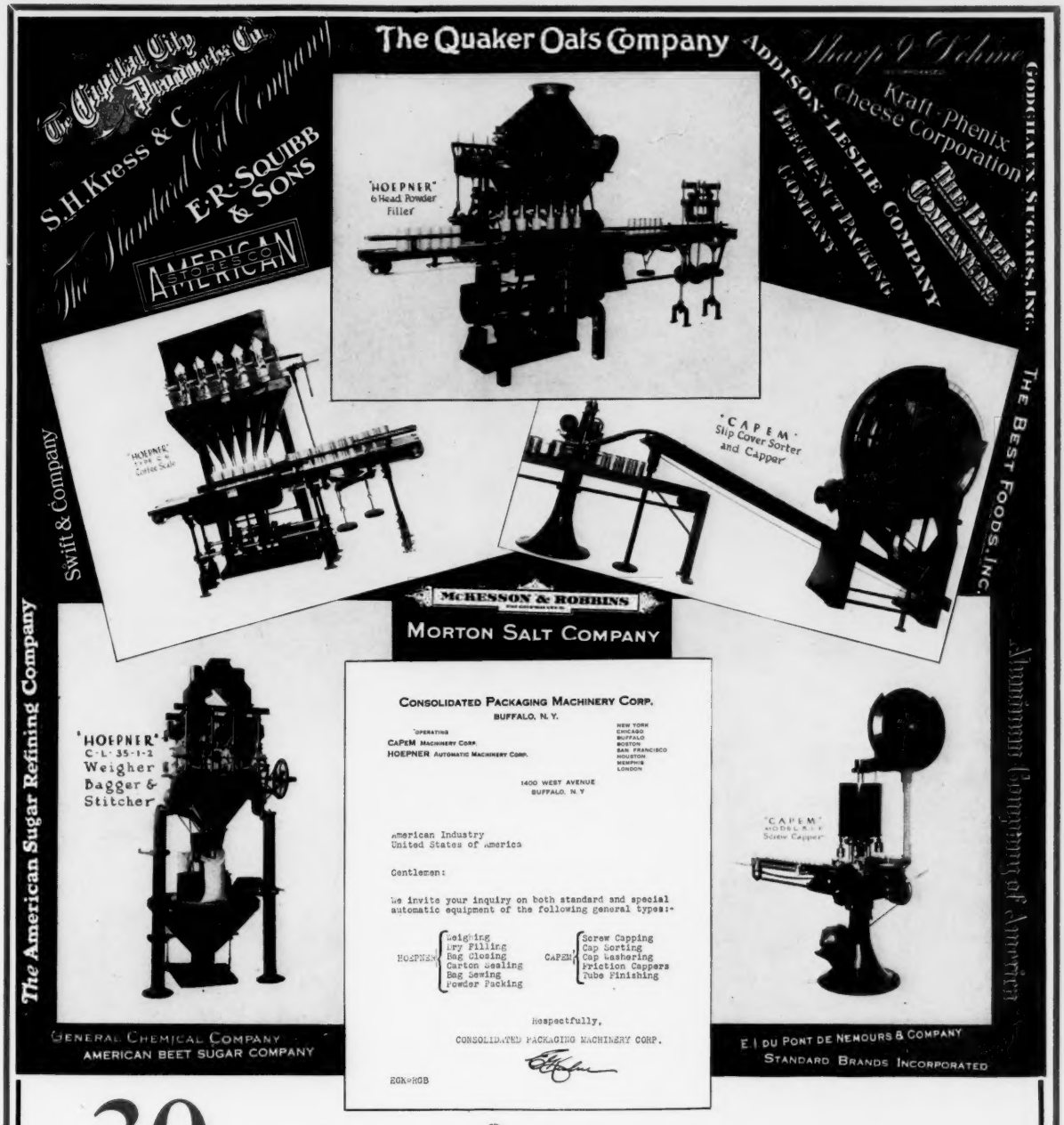
LOS ANGELES
1231 E. Seventh St.

A. H. WIRZ, Inc.

CHESTER, PENNSYLVANIA

Established 1836

Collapsible Tubes
Sprinkler Tops



30 years of progress . . . . .

. . . in the development of successful packaging machinery for American industry

CONSOLIDATED PACKAGING MACHINERY CORP.

HOEPNER AUTO MCHNY. CO.
Division

1400 West Avenue
BUFFALO, N. Y.

CAPEM MACHINERY CORP.
Division

XUM

GRIFFIN
KIDINE
Griffin Lotion Cream cleans, softens and polishes in one operation. No other dressings are needed
Cleans all brown calf
Polishes and kid shoes
OUTSTANDING
PACKAGES OF
1931
Torch White
FOR HANDS ARMS
LIQUID
FOR NECK SHOULDERS
DOES NOT RUB OFF
FOR A SOFT WHITE SKIN
NESTLE
SUPERSET
LOTION
FINGER WAVING
WATER WAVING
CREATED
AND
MANUFACTURED
by
BROOKS & PORTER
INCORPORATED
304 HUDSON STREET
NEW YORK
Antoinette Doré
PARFUME
ABOVE ARE A FEW OF THE PRODUCTS WE HELPED TO POPULARIZE AND INCREASE SALES DURING THE PAST YEAR.
THEY WERE DESIGNED AND MANUFACTURED AT OUR CONVENIENTLY LOCATED PLANT.

IS ANYTHING HOLDING YOUR PRODUCT BACK?

IF your sales are not what they ought to be—if the turnover of your retail outlets is lagging—it is entirely possible that the manner in which your product is being presented to consumers has become monotonous and lost its appeal. In this connection some remarks recently made by C. F. Kettering, Vice President of General Motors Corp., apply with particular force. He said, "When we continue to produce the same things, the same models indefinitely, the product becomes monotonous and the people don't want to buy it."

A Way to Help Sales

Realizing the need of something to stimulate sales, more and more manufacturers are putting their packaging problems up to Norloc. Here they find a highly specialized service, experts in package design and construction, a staff of merchandising men with an intelligent understanding of their problems.

On this and the following pages are shown some of the innumerable sales building containers we have designed and produced for nationally known organizations.

Norloc

Norton Laboratories, Inc.
LOCKPORT, N. Y.

Sales Office: New York City

XUM

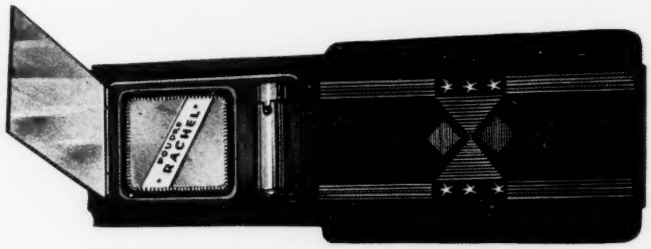
CHANGE OVER TO NORLOC

NEVER before has it been so essential to use the finest merchandising aids possible in marketing products of almost every description. The ordinary, the commonplace, no longer appeal to the customer. And this applies just as much to the container as to the product itself.

Norloc containers are being used for an infinite variety of articles—jewelry, cosmetics, candy, etc.—because they create a desire to buy. They set off the product so alluringly that increased sales always follow.

Norloc molded containers have a hard, lustrous durable surface that requires no buffing, enameling or lacquering. They are molded of Bakelite, Durez, Lumarith or Aldur.

Norloc boxes provide a charming setting for rings and jewelry.



Here's an ingenious idea for a vanity case. To close it simply fold the mirror into place and slide into cover.

If there is one product more than any other that requires a distinctive, enticing container, it is candy.

We have designed a number of outstanding packages for nationally known candy manufacturers.

If you are interested in stimulating your sales with more attractive containers, let us talk the matter over with you. There's no obligation involved.

Perhaps we can offer some suggestions for containers that will make your product stand out and create a greater buying urge for it on the part of consumers. Our experts will gladly consult with you.

Norloc
Norton Laboratories, Inc.
LOCKPORT, N. Y.

XUM

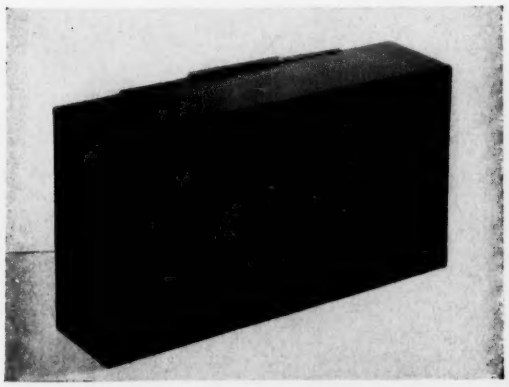
MOLDED CONTAINERS

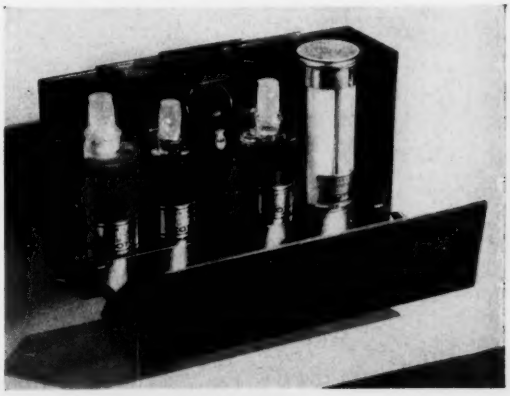
The above illustration shows how effectively Norloc Boxes enhance the appeal of Elgin Watches. Cosmetics, jewelry and many other products show to supreme advantage in Norloc Boxes.

PRACTICALLY any design, any form may be reproduced in plastics, and every color may be had.

Sometimes a molded container will solve a packing problem—when, for instance, a tricky bottle is used as a container. Because of its shape, it is difficult to pack properly. A molded form to fit over this odd shaped bottle would help to solve the problem.

Norloc experts are ready to cooperate with you in any problems of this character. An interview will not obligate you in the least.

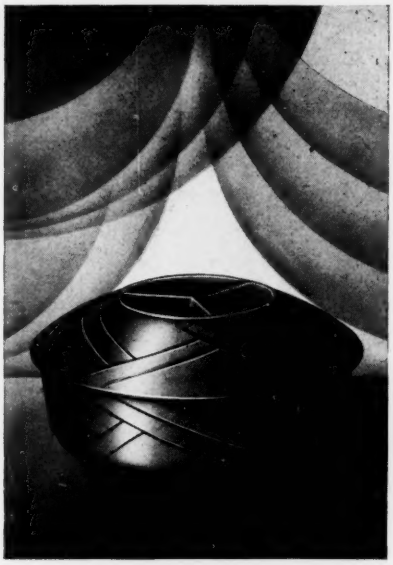




Norloc
Norton Laboratories, Inc.
LOCKPORT, N. Y.

XUM

SKILL....
EXPERIENCE....
JUDGMENT.....



This distinctive box can be used for candy, dusting powders, bath salts, etc. It is a stock mold. Specially designed covers can be supplied for it.

TO design and produce an effective container of molded plastic calls for unusually broad, varied and practical experience.

When your packaging problem is submitted to us, we have our specialists study it from every angle. First comes the merchandising phase of the container. What color, size and shape would be most resultful? How should the trade name appear, boldly or inconspicuously? Then comes the matter of artistically designing the package in detail; and finally, the engineering features involved in the production of the containers are worked out.

In all these phases we offer you the skill, experience and judgment of a capable staff of packaging experts who have an unusually successful record for creating sales-building containers.

The device shown at the left is the famous Schick Electric Razor. Both the holder and plug are Norloc Molded Products. This device has been favorably commented upon by some of the leading journals on modern design.

The closures of the Faoen Perfume Vials illustrated at the right show how a Norton engineering idea successfully solved the problem of designing closures that make a harmonious ensemble.

Norloc

Norton Laboratories, Inc.
LOCKPORT, N. Y.

Sales Office: New York City

XUM

DESIGNING A NEW PACKAGE ?

RESTYLING AN OLD CONTAINER

TO MAKE IT SELL ?

[illegible] you [illegible] want the new
[illegible]ODE [illegible] samples.

[illegible] help you [illegible] brilliant, modern
boxes with [illegible] Style Appeal.

[illegible] Your product.
[illegible]D SEX [illegible] sample sheets (we
[illegible] show accurately
[illegible] today's [illegible]
[illegible] merchandising idea
[illegible] that SELLS.

INTRODUCING
METAL-MODE

A STRIKING NEW LINE
OF EMBOSSED METALLICS

[illegible] FOLDING
[illegible] BOARD

[illegible] IN THE CARD, CUT OUT AND MAIL

MIDDLESEX PRODUCTS CO., BOSTON

[illegible] me on your mailing list to receive samples
[illegible] also send us samples of the following

[illegible] and
[illegible]

Name

INDIVIDUAL _____ DEPT. _____

COMPANY _____

Address _____

_____

PLEASE WRITE HEAVILY

« **MODE** Group Papers by MIDDLESEX are winning a leading place in the packaging world.

« « Their exquisite designs and authentically fashionable colors have a definite feminine appeal, (and women buy most of the packaged merchandise.)

Stock No.	LINE	*Price Class
801S	METAL-MODE	UNDER $20.00
46G	GOLDEN-MODE	$8.00 up
699	GALA-MODE	$4.75
515B	VANI-MODE	$5.50
603	GALA-MODE	$4.75
E98R	STANDARD	$3.30 up Depending on Shade
E18AS	EMBOSSED	

NEW SAMPLE BOOKS OF THESE LINES WILL SOON BE READY

Be Sure to Mail the card

*Price in Rolls 20x26—500 2 Reams/Roll Quantity 6 Rolls F. O. B. Boston

IN ADDITION TO LINES SHOWN HERE, MIDDLESEX MANUFACTURES AND STOCKS FOR SAME DAY SHIPMENT, A COMPLETE RANGE OF COLORED GLAZED AND PLATED PAPERS, CLOTH-LINED PAPERS, MODE ADVERTISING COVER, DUPLEX GREETING CARD AND ANNOUNCEMENT PAPERS.

NO POSTAGE NECESSARY: JUST FILL IN THE OTHER SIDE,

Postage Will Be Paid by Addressee

No Postage Stamp Necessary If Mailed in the United States

BUSINESS REPLY CARD

FIRST CLASS PERMIT No. 6456 (SEC. 364½ P. L. & R.) BOSTON, MASS.

2c POSTAGE WILL BE PAID BY

MIDDLESEX PRODUCTS COMPANY

38 CHAUNCY STREET

BOSTON, MASS.

CUT OUT AND MAIL

MIDDLESEX

PRODUCTS COMPANY

A Modern Mill

38 CHAUNCY ST., BOSTON
308 W. Washington St., Chicago

Middlesex ★ Coated Papers

THIS INSERT PRINTED ON SILVER-MODE FOLDING BOXBOARD NO. 407F

XUM

PEERLESS ACCOMPLISHMENTS

Keeping pace with the great strides made in modern packaging, the Peerless Tube Co. has pioneered in the campaign to bring the advantages of tubes as containers, to industry after industry.

One after another, the executives of many forward-looking manufacturers have brought their packaging problems to us, and we have had the pleasure of working with them in designing and producing tubes that meet their needs in every respect.

In line with the policy of this organization, to provide its customers with the best possible tubes, we have contracted for the exclusive use of the highest quality tin available in the world. It has the greatest pliability and freedom from cracking, pinholes and splits.

The price difference for the use of this special tin is almost negligible.

We shall be pleased to submit proof of our claims covering the advantages of this high-grade tin, to any interested manufacturer.

PEERLESS TUBES PRESERVE AND OUTLAST THEIR CONTENTS

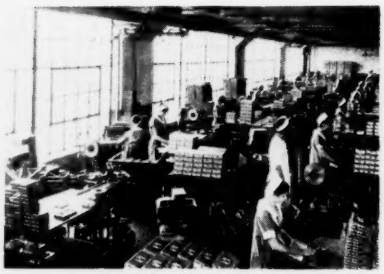
PEERLESS TUBE COMPANY

70 LOCUST AVENUE BLOOMFIELD, N. J.

PACKAGE MACHINERY

American Tobacco Company

American Chicle Company



Congress Cigar Company

W. F. Schrafft & Sons Corp. (Schrafft's Chocolates)

General Offices:

Springfield, Massachusetts

New York Chicago Los Angeles

London: Baker Perkins, Ltd., Willesden Junction, N.W. 10

Manufacturers of
Package Wrapping Machines

THE remarkable growth of the package goods business, especially in America, has called for the wrapping of an impressive variety of products. The Package Machinery Company, having been founded in what might be termed the dawn of the package goods era, has taken a leading part in the development of wrapping machinery. Every year has seen an increase in the number and variety of goods wrapped on our machines. This steady growth finds us today with what is probably the largest and most complete line of wrapping machinery built by any single organization.

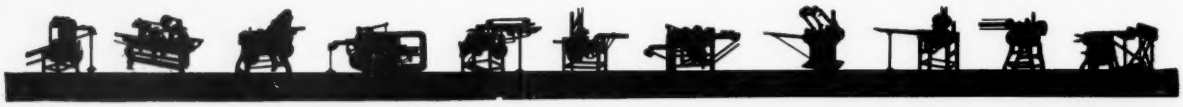
It is natural, therefore, that manufacturers, when putting out new products, or when seeking better ways of wrapping old products, should turn to us as the logical source for their wrapping machinery.

We show here a few typical installations in well-known factories. Installations such as these dot the map from coast to coast.

Adaptability of our machines to various wrapping materials

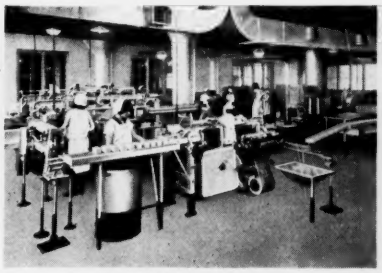
With the development of packaging, there has been a corresponding growth in the variety of wrapping materials used. Our machines are adaptable to practically every modern wrapping material—printed wrappers, glassine, waxed paper, Cellophane, moisture-proof Cellophane and foil.

One of the most outstanding package developments in the past year—the Humidor Pack, developed for Camel

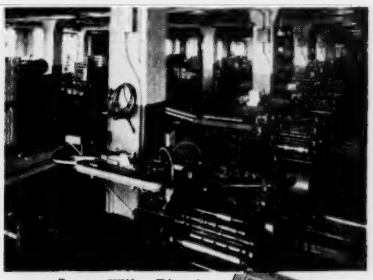


COMPANY, SPRINGFIELD, MASSACHUSETTS

C. F. Mueller Company (Macaroni and Spaghetti)



Bristol-Myers Company



Loose-Wiles Biscuit Company

and Lucky Strike Cigarettes—was made possible by the fact that we were able to supply a machine which could make the necessary *Tight seal*, using moisture-proof Cellophane. This wrapping can be used to advantage for many other products—chewing-gum, coffee, perfumed soaps, powders—in fact for any product that must be protected against outside moisture, drying-out, or loss of flavor or fragrance.

High Speed Machines

Our machines are built to run at the highest speed consistent with good wrapping and the life of the machine. High speed means that the owner secures the maximum amount of production for his labor costs and the cost of floor space. In many instances the installation of high speed machines to replace older models makes it unnecessary to rent more floor space or to build an addition to the plant.

Long Life—Dependable Service

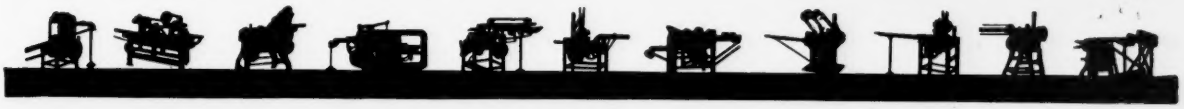
The most durable materials that money can buy are used in the construction of our machines. The workmen that build them are highly skilled craftsmen, especially trained by years of experience to produce work of fine precision. The result is that our machines give outstanding service for many years. Numbers of models built over 20 years ago are still in service.

Expert service men are always available for service in any part of the country.

Let us solve your Wrapping Problem

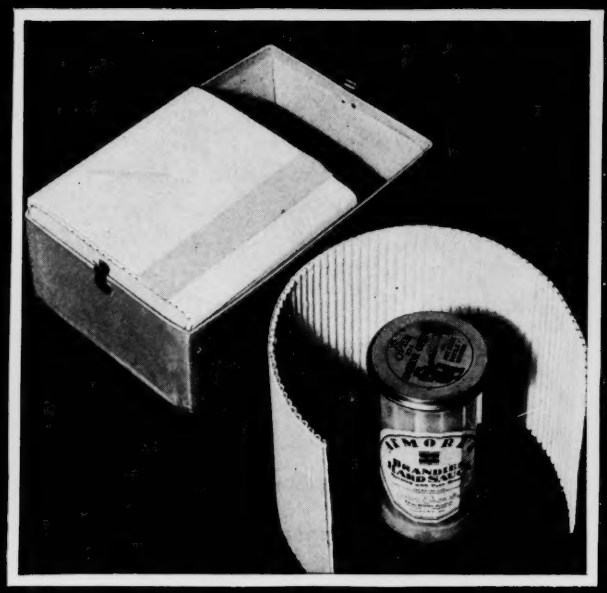
Our catalogue will give you an idea of the work done by our machines. If you have any special problem, send us a sample of the product you wish to have wrapped, with a description of the type of wrapping you have in mind. Get in touch with our nearest office.

Best Foods Inc. (Nucoa Oleomargarine)



• NEW "SPEED" PACK

BILLOW PAK
REG. U.S. PAT. OFF. AND FOREIGN COUNTRIES
CREPE WADDING



BILLOWPAK

Beads
Candles
Cosmetics
Drugs
Food products
Fruits
Glassware
Jewelry
Optical goods
Patent medicines
Perfumes
Scientific products
Silverware
Toilet goods
Watches
Window displays

BILLOWPAK and Kimpak are both made of feather-light cellulose wadding. For some products you will prefer the air-cushioned Billowpak. For others, Kimpak, highly absorbent, soft, resilient.

Billowpak can be scored and die-cut, to make a decorative, protective, absorbent liner. Furnished in white or practically any color to suit your product. The backing may be white, or any of our suitable colored stocks.

Kimpak comes in rolls, sheets or pads of specified sizes. The sample above is 10-ply, tissue-

Billowpak Window Di

Never before has the national adv
a material which can be used fo
of box liners and window backgr
effects are obtainable with colore
display package is no mon import
window in which it is offered to
for samples for test windows a
windows used by other national ac

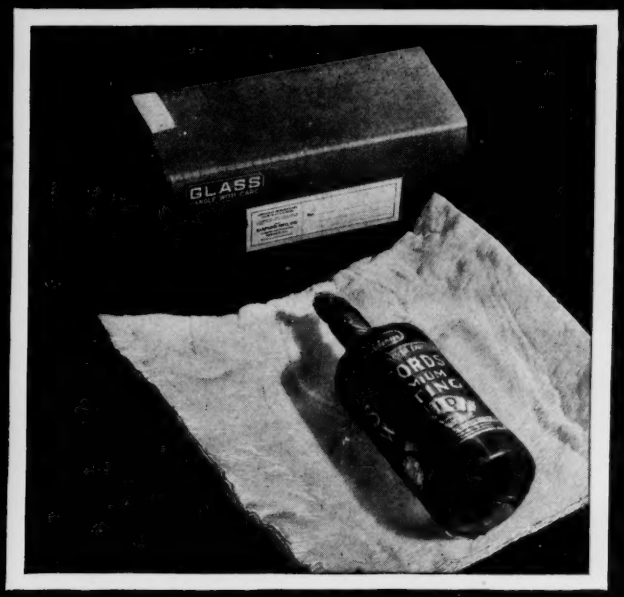
• KIMBERLY-CLARK CO

8 SOUTH MICHIGAN AVENUE, CHICAGO

XUM

CKAGING ECONOMY •

Kimpak
REG. U.S. PAT. OFF. & FOREIGN COUNTRIES
Crepe Wadding



Window Displays, too!

...e national advertiser been offered ...an be used for the dual purpose ...indow backgrounds. Novel new ...ble with colored Billowpak. The ...o more important than the display ... is offered to the buyers. Send ...st windows and for photos of ...her national advertisers.

backed, line-embossed. It can be obtained in as few or as many plies of thickness as desired; either plain or with backing of tissue, kraft, parchment, or jute liner.

Both Billowpak and Kimpak exceed parcel post requirements for absorbency. We will be glad to have you send us samples of your product as now packed. We will repack for fastest, safest, most economical packing, and return to you promptly with estimate on the material required. Or we will be glad to send you samples of Billowpak and Kimpak for you to try.

KIMPAK

Airplane parts
Auto accessories
Caskets
Clocks
Door hardware
Furniture, wood
Furniture, metal
Instruments
Lamps
Liquids
Pharmaceuticals
Radio cabinets
Radio tubes
Refrigerator cabinets
Store fixtures
Stoves

ORPORATION MANUFACTURERS NEENAH, WISCONSIN •

122 EAST 42nd STREET, NEW YORK CITY

XUM

PILLIOD

Utility Containers for the Unit Sale of Merchandise

DISTINCTIVE, outstanding packages—new things in design and finish—the latest creation (Echwood) for box tops and serving tray designs. Resembles hand carving and produces a beautiful, natural wood background for silhouettes which stand out in bold relief.

Manufacturers of containers for confections, cosmetics, papeterie, fabrics, novelties, sporting goods, silverware, cigars, cigarettes, food products, trays.

Our Thirty-Seventh Year

The Pilliod Cabinet Company . . . Swanton, Ohio

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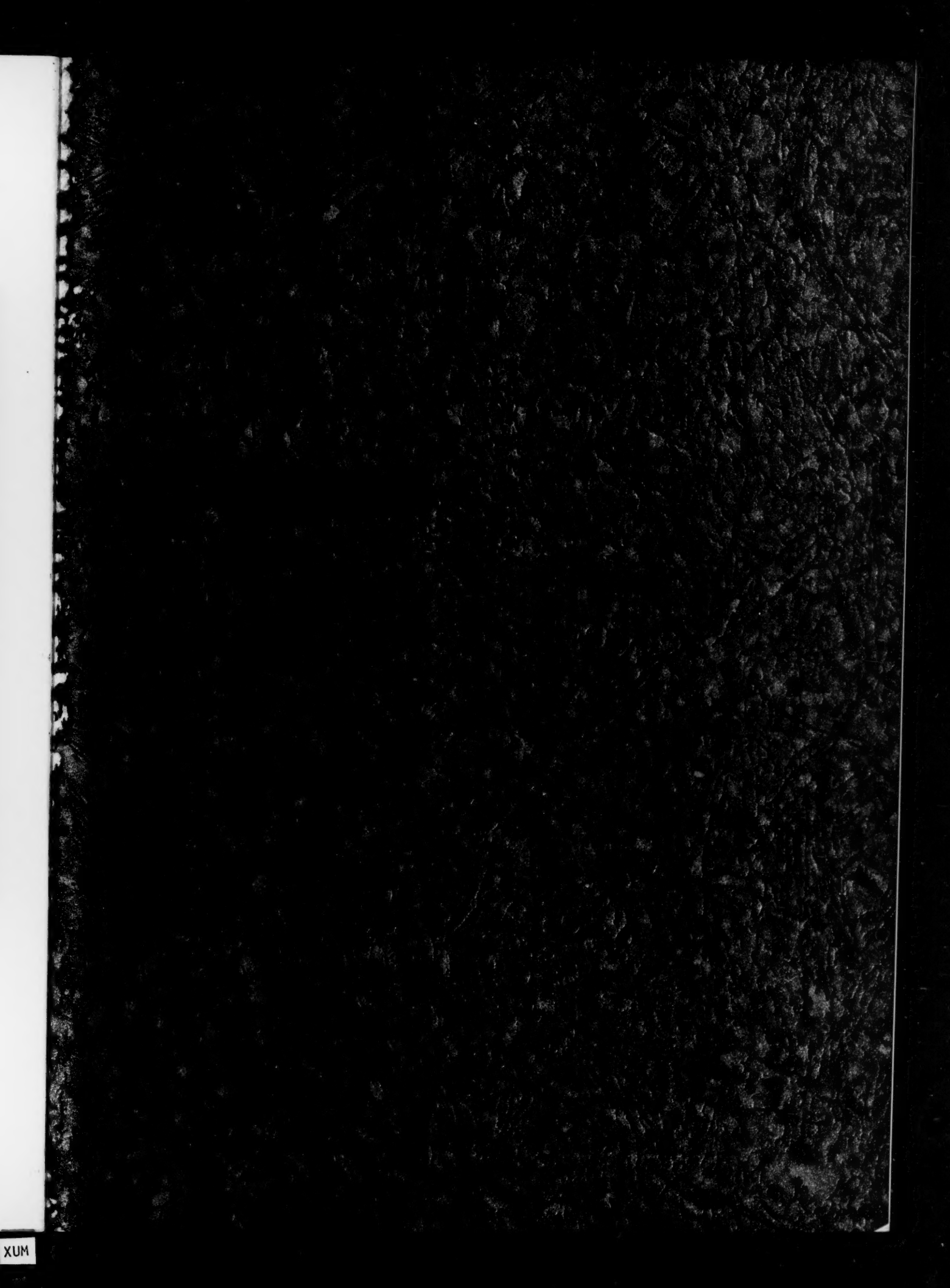


METALART Box

for

- Economy
- Durability
- Attractiveness
- Sales Appeal

NO OTHER cover paper gives you such outstanding cardinal points as those offered by Metalart Box.

Beautiful in appearance—unusual in finish—rich in coloring, it will make up into durable, soilproof boxes that will enhance the appearance of the product and greatly help sales.

The six Metalart colors will blend beautifully with most any object. Carried in the usual box cover sizes. Full size sheets for making samples will be furnished upon request. This is another Marvellum paper priced to meet economy buying.

MARVELLUM DISTRIBUTORS

BRADNER, SMITH & CO.
333 So. Desplaines Street
Chicago, Ill.

HENRY L. GOODMAN
110 High Street
Boston, Mass.

HOLYOKE PAPER CORP.
417 Broadway
New York City

HOLYOKE PAPER CORP.
10 High Street
Boston, Mass.

S. HARTUNG & CO.
206-212 Race Street
Philadelphia, Pa.

HUGHES & HUGHES
217 Mercer Street
New York City

THE MARVELLUM CO.

Papers Distinctive

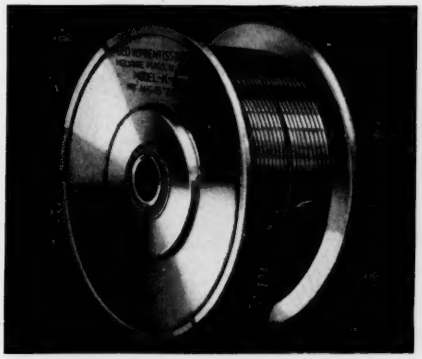
HOLYOKE, MASSACHUSETTS, U. S. A.

XUM

GEORGE W. PRENTISS & COMPANY

HOLYOKE, MASS.

Makers of Fine Wire
for Seventy-Five Years



PRENTISS STITCHING WIRE

Flat Coppered and Tinned Stitching Wire for Fibre Containers.

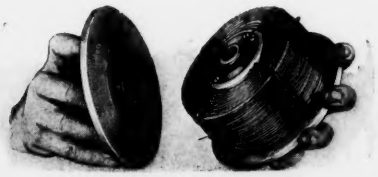
Stitching Wire for all purposes, put up on solid spools, or in spoolless coils on paper cores.

Good boxes require Good Wire.

PRENTISS Wire is correct in temper, size and finish, accurately and carefully wound. All standard sizes carried in stock.

Also

Special Wires for special purposes, made to order.



In the PRENTISS Spool, the recessed head (patented) is in contact with the coil and holds it firmly at all times. The highest efficiency and lowest cost of operation result from the use of PRENTISS Spools and Wire.

For 75 years PRENTISS Wire Mills have been making high grade Iron and Steel Wire.

Our product is in use on all makes of stitching machines and is the standard of quality.

Manufactured by

GEORGE W. PRENTISS & COMPANY

HOLYOKE, MASS.

XUM

THIS BOX OF SAMPLES

IS YOURS ON REQUEST

SHREDDED PAPER

A COLOR OR GRADE FOR EVERY PURPOSE

merchants like to display the product packed in bright, colorful shredded paper. they know the buying urge that sparkling color creates and are quick to cash in on its possibilities for profit.

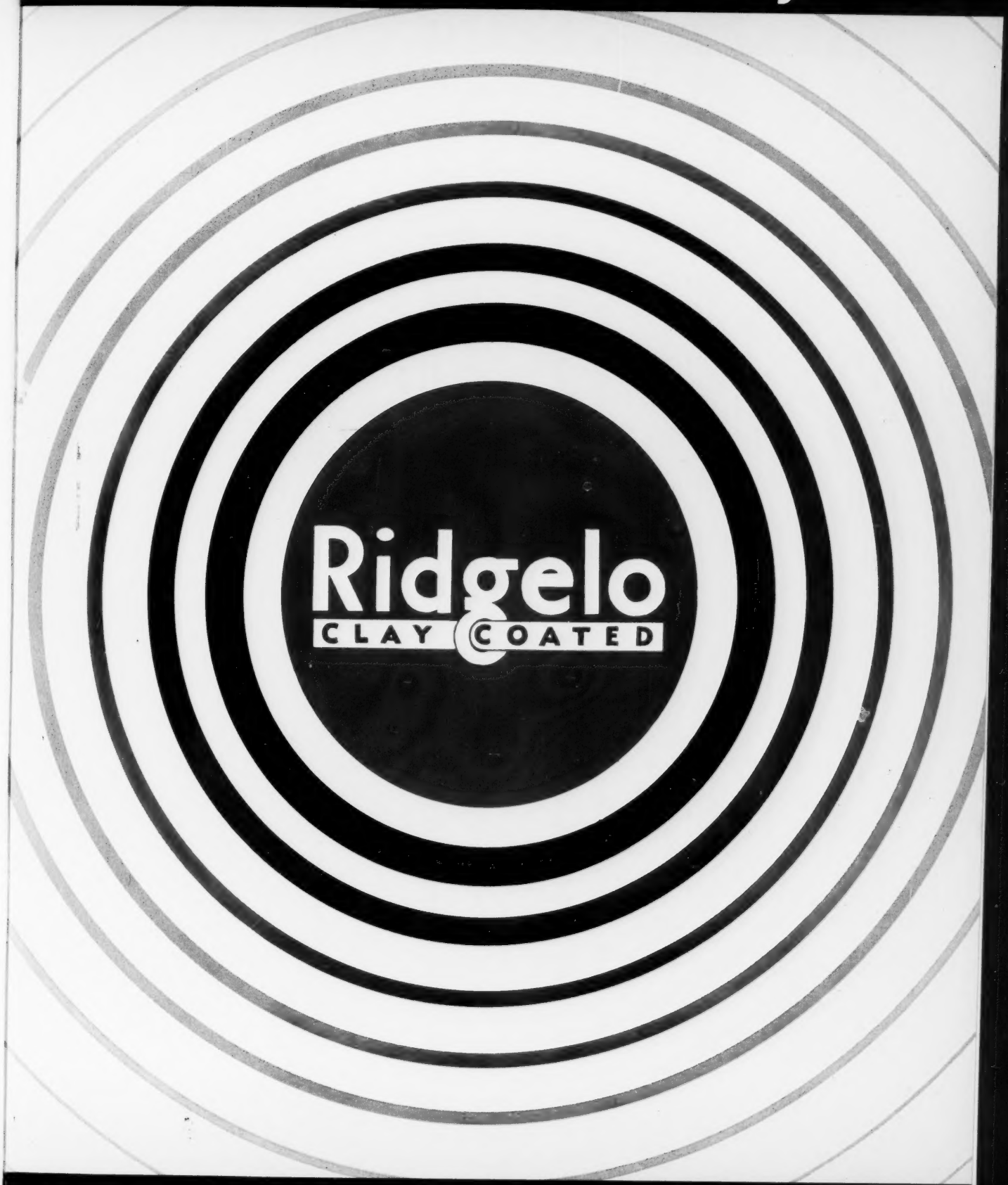
for packing, shredded paper is superior to old fashioned materials. the resiliency is greater and it is light and absolutely clean.

PIONEER PAPER STOCK COMPANY

448 W. OHIO ST.
CHICAGO, ILLINOIS

XUM

Always a Bull's-eye



Lowe Paper Co., Ridgefield, N. J.

If you are Aiming at

INCREASED SALES

And you are Sighting Thru

EYE APPEAL,—

You will hit the Bullseye
Most Frequently
If Your Package is made of

Ridgelo
CLAY COATED

Made at Ridgefield, New Jersey
by the
LOWE PAPER COMPANY

This Insert is
Ridgelo Clay Coated Folding Boxboard
Lithographed Both Sides

XUM

FIBRE CANS

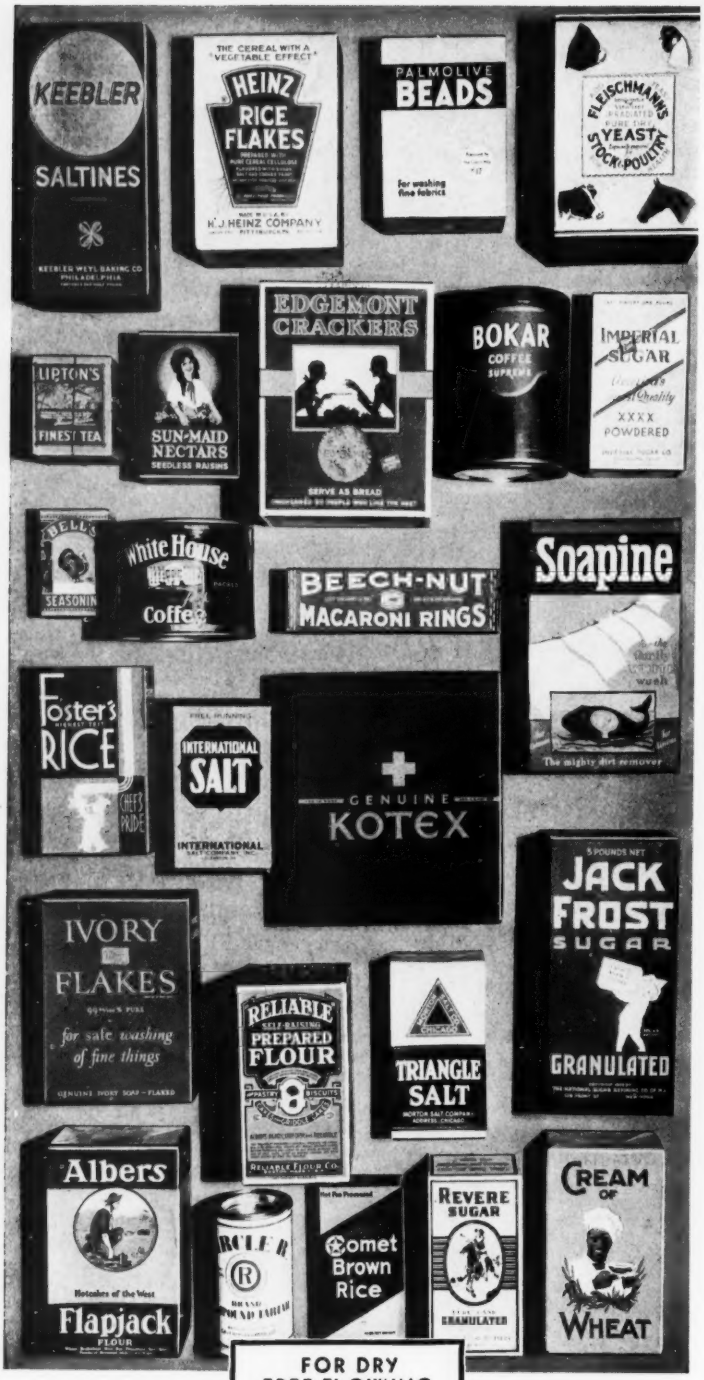
Here are just a few of the endless variety manufactured by the

R. C. CAN COMPANY, St. Louis, Mo.

Leaders in Quality and Service

Factories: St. Louis, Kansas City, Mo., and Rittman, Ohio

WHY PACK IN TIN?



FOR DRY FREE FLOWING MATERIALS

(Fully and Semi-Automatic)

- Carton Feeders
- Bottom Sealers
- Lining Machines
- Weighing Machines (Net and Gross)
- Top Sealers
- Wrapping Machines (Tight and Wax)
- Capping Machines
- Labelling Machines
- Tea Ball Machines

. . . These are your

When you come to the point of selection of the kind of packaging machinery that will do the best job for you, there are three things to consider. Costs, dependability, efficiency. There is only one way to prove what a machine will do for you in your plant. That is, to observe what it has done in others. And so we submit to you as proof of what Pneumatic machines can do for you, pictorial proof of what it has done for others. Pneumatic machines were used to weigh, fill, cap or package every one of these nationally known products. These manufacturers have tested costs and

references

results. They have selected the Pneumatic way as the most efficient packaging method.

This list of Pneumatic users includes the greatest names in every packaging industry—manufacturers of dry, free-flowing and liquid or semi-liquid products. In the complete Pneumatic system of over seventy different machines for the handling of these products, there is a machine or machines to fit your needs. Write Pneumatic Scale Corporation, Ltd., 77 Newport Avenue, Norfolk Downs, Quincy, Mass.

FOR LIQUIDS AND SEMI-LIQUIDS

Vacuum Filling Machines
(for liquids or semi-liquids)

Automatic Capping Machines

Automatic Cap Feeding Machines

Automatic Corking Machines

PNEUMATIC SCALE
PACKAGING MACHINERY

PNEUMATIC SCALE CORPORATION, LTD., NORFOLK DOWNS (QUINCY), MASS.

Branch Offices in New York, 26 Cortlandt Street; Chicago, 360 North Michigan Avenue; San Francisco, 320 Market Street; Melbourne, Victoria; Sidney, N. S. W. and 9 Whitehall, London, England

XUM

from Tea *to* Piston Rings

from toys to facial creams, from surgical dressings to cigarettes . . . R-T-G packaged products run the full range of consumer and industrial goods produced and sold nationally.

A complete staff of men and women, experienced in many lines of business, accustomed to interpret sales ideas and express them in packages and displays, makes it possible for R-T-G clients to avail themselves of the modern trends, in a wide variety of ways.

R-T-G facilities include sales counsel, artists and idea men backed by mechanical equipment equalled by very few. Make a note of some of your packaging and display problems, and invite us to study and discuss ways of solving them with you.

The Richardson-Taylor-Globe Corporation

4500 Mitchell Avenue
CINCINNATI

NEW YORK
501 Fifth Avenue

PHILADELPHIA
980 Drexel Building

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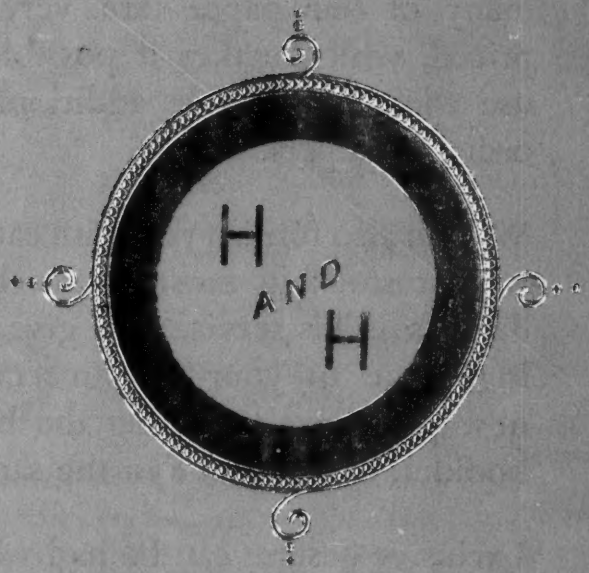


2911

H & H

OUR box covering papers are designed for the specific purpose of giving the maximum sales value to your goods. A great many of our papers are very moderately priced, which makes it possible for you to use them with little additional cost over ordinary papers.

We can also furnish you with catalogue cover weight stock in most of our box covering designs. This service will give full advertising value to your announcements on any new package, by having the box covering, booklet, or catalogue in the same design.

Exclusive designs can be had where quantity warrants. The insert in this book is one of our Horizon Tints, which come in seventeen beautiful shades.

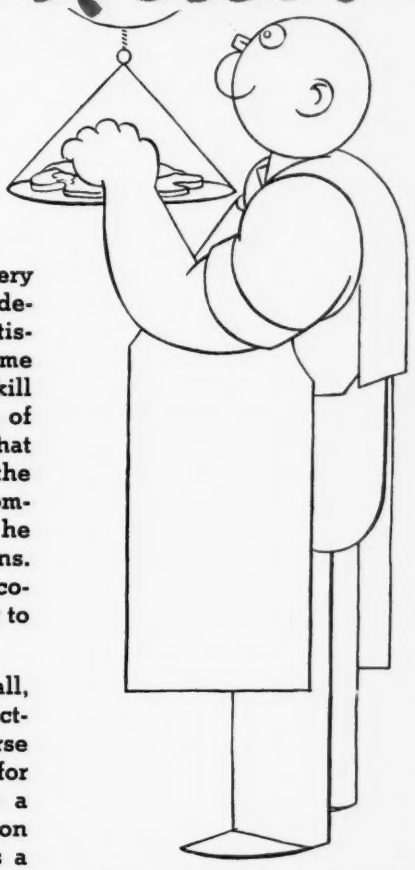
May we submit sample books or working sheets?

H & H

Hughes and Hoffman

217-219 MERCER STREET
NEW YORK CITY

"How much will it cost?"



● "How much will it cost?" "How do you work?" We keep getting these queries right along from manufacturers who want ideas and art work and yet are afraid of what they will cost.

There are many good business men who would be glad to have help in their packaging who hesitate to employ us because of the preliminary cost. We are not anxious to compete with our friends who submit rough sketches and ideas FREE. This is but bait. The man who works for nothing is generally worth just that much. One who pretends to work for nothing but gets even by "tacking on to the finish" is the highest priced man in the business. Artemus Ward once remarked: "All that I ever got for nothing was a black eye from a fellow whose toes I hadn't stepped on."

In submitting our idea suggestions, we don't see how we can "compete" in price. There is no market price for such things. How can you estimate an idea? It cannot be weighed upon the scales like ham... nor measured with a yardstick like gingham... nor put up in packages by Mr. Graham, the Wise-Cracker.

When a man goes out to buy an efficient piece of machinery for the plant he pays an adequate price for it and feels satisfied. Yet often when the same man, requiring specialized skill that will increase the sales of his merchandise, discovers that the price he must pay for the most capable brains is commensurate with its worth he registers immediate objections. Of a sudden he practices economy he would never apply to a machine.

Of course, you want, first of all, not to waste money on ineffective packages. Equally of course you don't want to pay a lot for fine effective work. Learn a lesson from the blind man on the corner. He never takes a step until his stick has gone "tap! tap!" and he knows where he's going.

We are artists. With ideas. We express the personality of merchandise in terms of design, through the form of a package, the color of a label. We make THE IDEA, not art, the attention getter. We use paper, glass, metal and plastic material merely as vehicles to carry a selling idea; shaping and coloring wares to please the sharpened esthetic taste of today's buying public. A bottle, a can, a package must be sold at "so much." That's the practical side. We always remember that, we never forget it.

Our work is priced to give all we can for the money, not to get all we can of your money. Do not assume that the high quality of our work must of necessity be expensive. Many people who once thought so have changed their minds and are glad they did. (Names on request) It costs nothing to find out what we can do... and little to have us do it.

MARTIN ULLMAN

250 PARK AVENUE . NEW YORK · ELdorado 5-6967

● Offering you unbiased advice on methods of packaging. We do no manufacturing. Our service embraces the planning of products, the physical construction of packages, designing of trademarks, labels and packages, selection of shape, color and materials.

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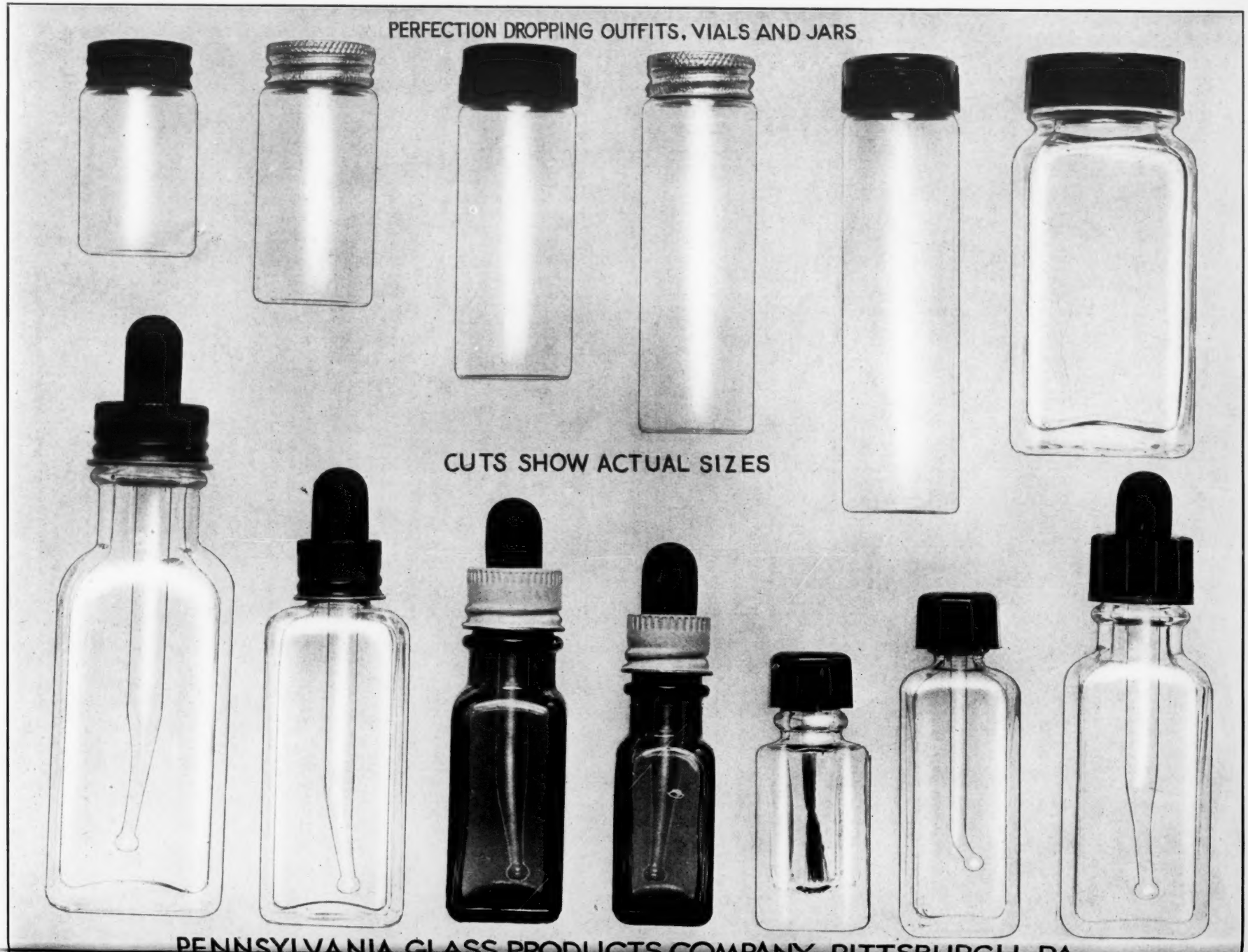
PERFECTION DROPPING OUTFITS, VIALS AND JARS
CUTS SHOW ACTUAL SIZES
PENNSYLVANIA GLASS PRODUCTS COMPANY, PITTSBURGH, PA.

PERFECTION DROPPERS AND APPLICATORS

XUM

PENNSYLVANIA GLASS PRODUCTS COMPANY, PITTSBURGH, PA.

PERFECTION DROPPERS AND APPLICATORS

CUTS SHOW ACTUAL SIZES
GOODS CAN BE FURNISHED IN ACCORDANCE
WITH YOUR SPECIFICATIONS

PENNSYLVANIA GLASS PRODUCTS COMPANY, PITTSBURGH, PA.

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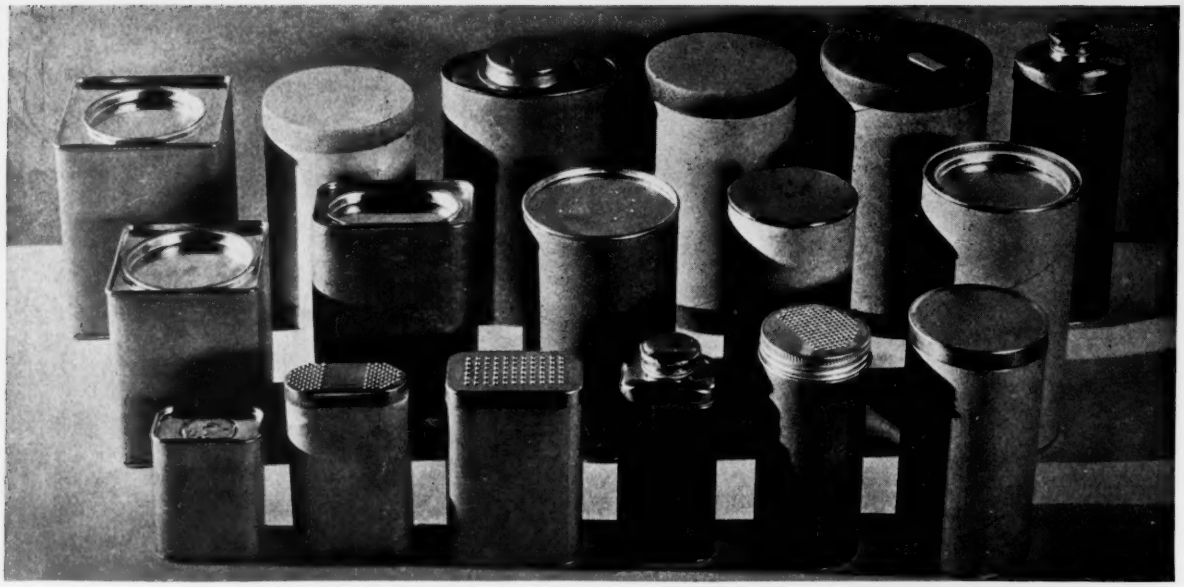


CANS

Fibre Bodies { **Fibre Ends** / **Metal Ends**

For Dry Products

Mailing Cases
Fibre Reels
Mailing Tubes
Fibre Spools

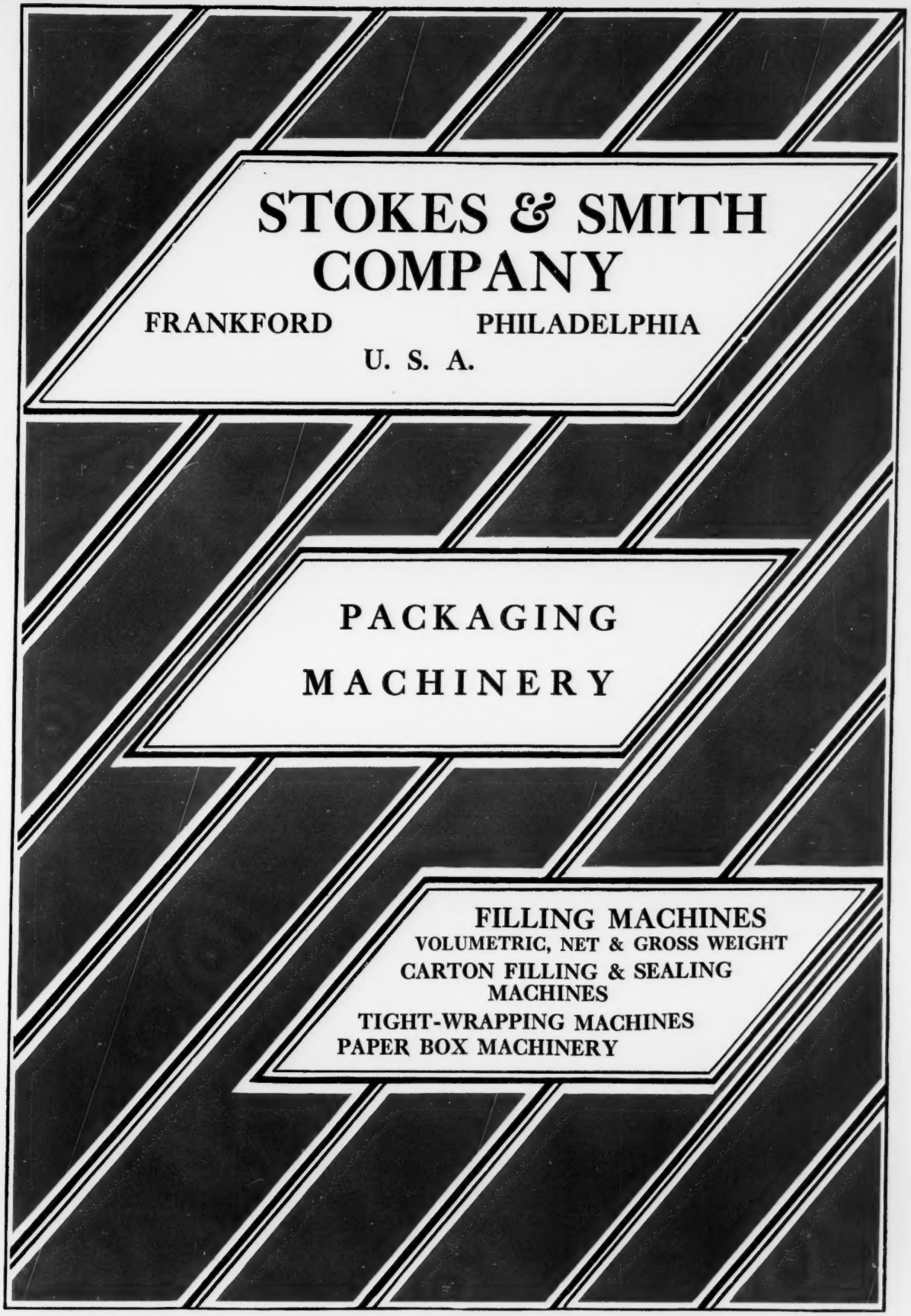
The largest, most diversified fibre can plant in the Central West

SEFTON

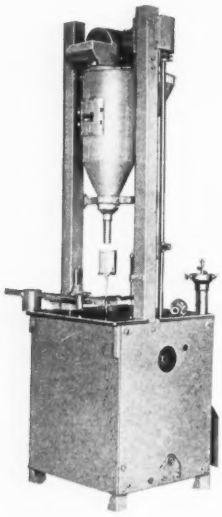
NATIONAL FIBRE CAN CO.

3275 Big Bend Blvd., ST. LOUIS, MO.

The Finest Fibre Can and Tube Service in America


STOKES & SMITH
COMPANY
FRANKFORD PHILADELPHIA
U. S. A.
PACKAGING
MACHINERY
FILLING MACHINES
VOLUMETRIC, NET & GROSS WEIGHT
CARTON FILLING & SEALING
MACHINES
TIGHT-WRAPPING MACHINES
PAPER BOX MACHINERY

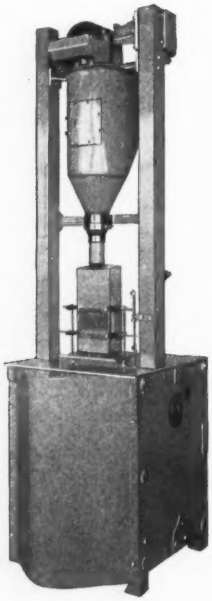
STOKES & SMITH COMPANY



S & S AMERICAN UNIVERSAL FILLING MACHINE

This is an auger-feed filling machine for filling practically every kind of powdered or granular product, also pastes and creams (not liquids) into any type of container—cans, jars, boxes, bags, etc. It can be used as a gross weight scale, or to measure the material, or to pack the material into the containers as tightly or as loosely as desired.

One operator required—production 15 to 25 per minute. Capacity ½ oz. up to 5 lbs. Floor space 3′ x 3′ x 7′ 4″ high. Requires ½ H.P. Motor. Shipping weight approximately 900 lbs. Additional information gladly sent on request.



S & S GROSS WEIGHT SCALE

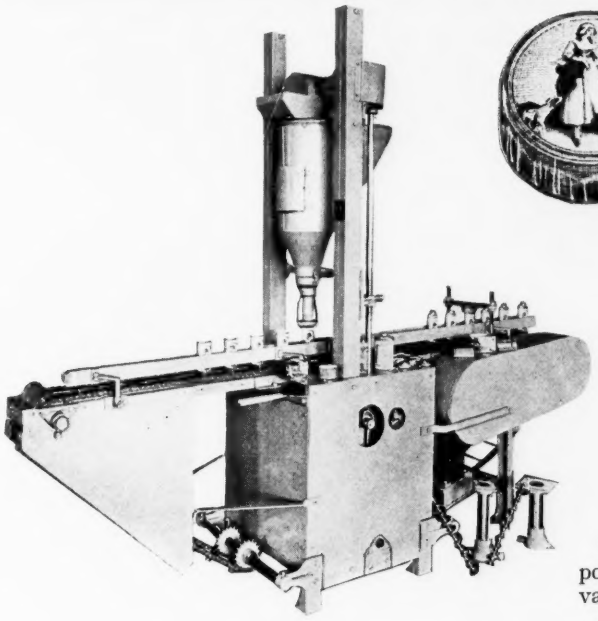
This is an auger-feed machine for filling powdered materials into larger bags, cans or cartons. This machine is particularly suited for Arsenate of Lead and other very fluffy materials.

Detailed estimates of probable cost of package and machinery will be furnished on request. No obligation is involved.

One operator is required—production 6 to 15 per minute. Capacity ½ lb. up to 6 lbs. Floor space 3′ x 3′ x 8′ high. Requires ¾ H.P. Motor. Shipping weight 1000 lbs. Write for full particulars.

XUM

STOKES & SMITH COMPANY



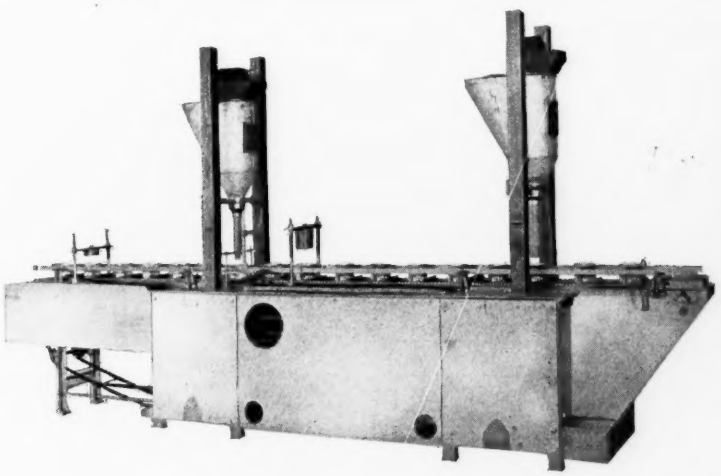
S & S SINGLE UNIT
AUTOMATIC FILLING MACHINE

This is an auger-feed filling machine and will fill various powdered or granular products, also pastes and creams in various quantities up to and including 1 lb.

One operator is required to place empty cans on conveyor—production 30 per minute.

This machine can also be furnished with a cap pressing device, when desired.

Floor space 3′ x 8′ x 7′ 4″ high. Requires ¾ H.P. Motor. Shipping weight 1400 lbs.

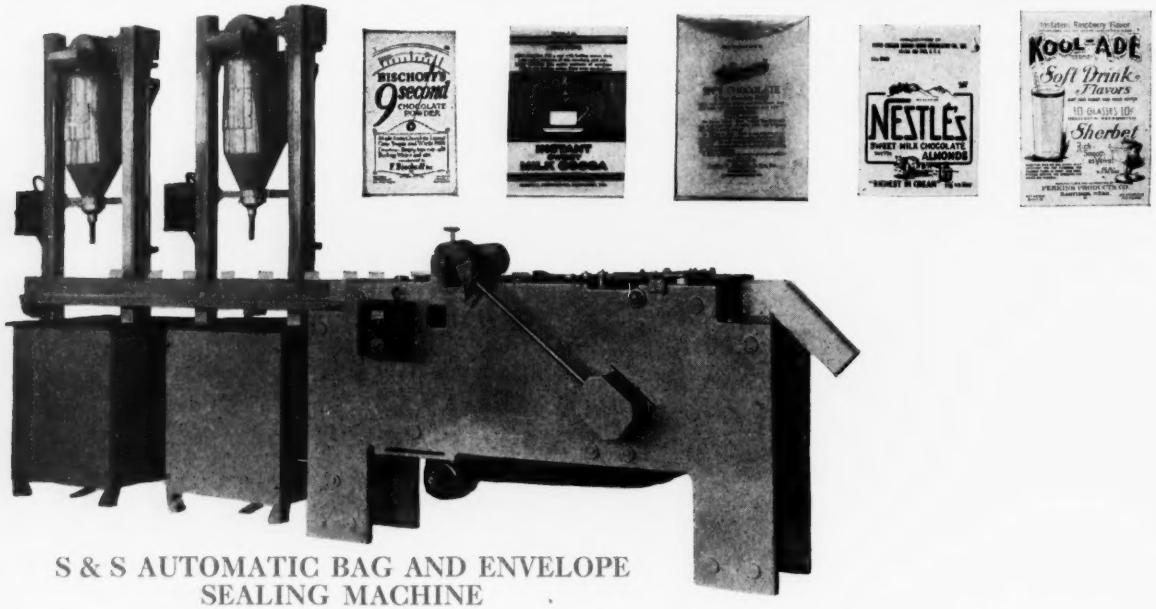


S & S AUTOMATIC DOUBLE UNIT
FILLING MACHINE

This machine has two filling stations for filling all kinds of powdered materials into cans, boxes, cartons, etc. The machine can be arranged for crowding material into package or measuring the bulk load at the first station, dribble weighing at the second station, or volumetric filling at both stations. It may be entirely automatic or hand fed.

Production 15 to 60 per minute depending upon the nature of the material and the quantity to be filled. Capacity ½ lb. up to 5 lbs. Floor space 2′ x 12′ x 7′ high. Requires 2 H.P. Motor. Shipping weight 3500 lbs.

STOKES & SMITH COMPANY



S & S AUTOMATIC BAG AND ENVELOPE SEALING MACHINE

Particularly well suited for sealing envelopes of chocolate powders, dessert powders, seeds, etc. This machine automatically glues and seals the flaps of the envelopes after they are filled on Stokes & Smith Filling Machines, or other hand fed machines. The Sealing Machine automatically takes the filled envelopes from the Filling Machines and seals the envelopes either with the safety fold or single fold.

Production 80 to 100 sealed envelopes per minute —adjustable for envelopes from 2″ to 10″ high when closed. Floor space 2′ x 8′. Requires ½ H.P. Motor. Shipping weight 1500 lbs.

S & S "NEVERSTOP" CARTON FILLING AND SEALING MACHINE

This is an automatic machine for products such as dessert powders, soap powders, cereals, salt, etc. Automatically feeds the cartons, bottom seals them, fills them and top seals them.

If desired a made-up bag liner can be automatically inserted and closed. This machine can also be used in combination with our Automatic Double Unit Auger Filling Machine for powdered, non-free flowing products. Production 60 to 70 packages per minute.

The machine is made in several models to suit the various sizes of cartons—

maximum—10 ½x 6½ x 4½″
minimum— 2¾ x 1⅝ x ¾″

XUM

STOKES & SMITH COMPANY

Tight-Wrapping Machine at Albers Brothers Milling Company, Oakland, California

S & S AUTOMATIC TIGHT-WRAPPING MACHINE

For tight-wrapping rectangular cartons after they are filled with soap powder, cereals, etc. The result is a sift-tight, weevil-proof package for all kinds of food and grocery products. With this machine a plain, unprinted carton or shell is used and a printed paper wrapper or label. This machine will connect with any make of Carton Filling and Sealing Machine.

Automatic Tight-Wrapping Machines have a production of 60 to 70 tight-wrapped packages per minute. Semi-Automatic Tight-Wrapping Machines have a production of 15 to 25 per minute.

The machines are made in several models to suit the various sizes of cartons—

maximum—10 x 6½ x 4″
minimum— 3¾ x 1½ x 1″

XUM

STOKES & SMITH COMPANY

Meeting YOUR Need for FILLING, SEALING & WRAPPING EQUIPMENT

YOUR PRODUCT	Coffee, rice, sugar or other granular products; Cocoa, face powder, dry milk and materials which have to be crowded into container; Spices, insect powder and chemicals; Cereal, soap-powder and flour; flakes of cereal or soap; more than 100 kinds of material are being filled on our machine.
YOUR CONTAINER	Cans or Canisters, cartons plain or tight wrapped, bottles or bags, envelopes or boxes, large packages or small ones, those easy to fill or the harder ones; your container will be the exception if one of our machines cannot fill it.
YOUR PRODUCTION	10, 15, 30, 60 and higher speeds are offered depending on the size and character of the container, the kind of material, the accuracy required and the appropriation available. The effort is to meet your particular need.
OUR MACHINES	The Universal Filling Machine is truly named and its use is becoming universal as a stepping stone to full automatic production. Gross Weight Scales, Net Weight or Volumetric Measurement may be used as separate machines or combined with carton lining, sealing and wrapping machines. Some are fully automatic and some require an operator. All machines are fully covered by patents.

Let Us Assist You—

Our whole organization is at your disposal

The results you get from your automatic packaging machinery depend in a large measure on the amount of thought and study given your particular packaging problem *before* the machinery is installed.

For instance, it is always advisable that definite specifications covering every detail of the construction of your carton or container should first be prepared. Our engineers can cooperate with you in this work.

And if you manufacture several products it is entirely possible that by careful planning, all or some of them may be handled on the same machines.

In almost any problem pertaining to packaging our engineers can offer you valuable assistance. We shall appreciate an opportunity to serve you.

STOKES & SMITH COMPANY

PACKAGING & PAPER BOX MACHINERY

FRANKFORD, PHILADELPHIA, U.S.A.

London Office: 23 Goswell Rd.

Australia, F. T. Wimble & Co., Ltd., Sydney **Pacific Coast, Mailler Searles Inc., San Francisco, Cal.**

XUM

PRACTICAL CO-OPERATION

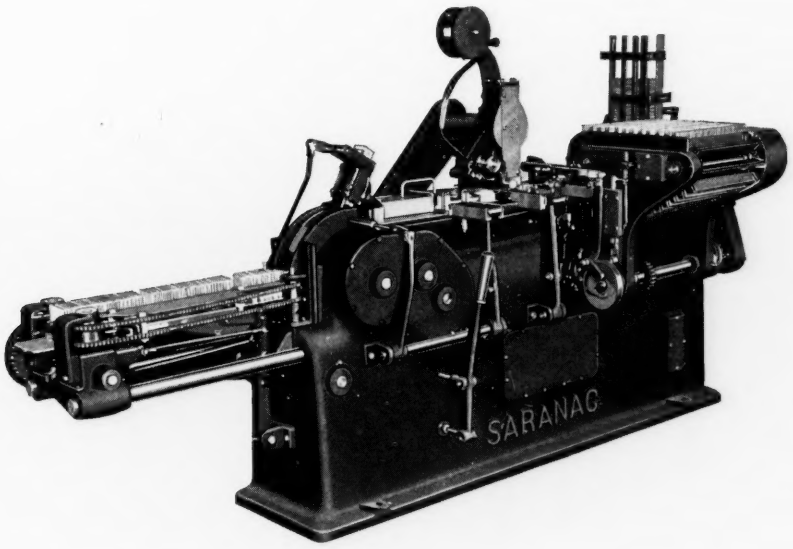
A NOVEL PACKAGE

A splendid advertising medium. A sleeve-like pocket carton into which a standard pack of twenty cigarettes fits snugly. A supply of the necessary matches. Matches and cigarettes always together. Seven spaces for ads for the smoker to see some twenty times. A good-will builder.

and—

A MODERN MACHINE

Designed, developed and built especially for the production of the "Handipak" Match and Cigarette Case. The printed carton blanks and the multiple width strips of matches are simply placed in their respective hoppers; the rest of the operations are entirely automatic, including the folding and forming of the carton, positioning and stapling the matches, intucking the flaps, collapsing for knocked-down shipment, and collocating in the delivery hopper.



The machine illustrated was built especially for the 7-AD MATCHPAK ADVERTISING CO., Winfield, Long Island, N. Y., to whom inquiries concerning the patented carton, shown above, should be directed.

WHAT CAN WE DO FOR YOU?

SAR-A-NAC

SARANAC MACHINE COMPANY

STAPLING AND PACKAGE MAKING MACHINES

FOR WOODEN, VENEER, PLYWOOD, FIBRE AND PAPERBOARD CONTAINERS

SPECIAL MACHINERY

BENTON HARBOR, MICHIGAN, U. S. A.

FUNCTIONAL DESIGN AND SUCCESSFUL PACKAGES

Nothing could better illustrate true Functional Design than the human hand. Designed by the greatest Master in conformity with what is termed today, Functional Design, nothing was added to its appearance but beauty.

In the creation and design of packages, we are guided in our work by the principles of Functional Design. We design packages with regard to their specific duty as well as their visual appeal. We believe the purpose of the package should be apparent. Functional design, the expression of art in today's language and its application to merchandising, regards BEAUTY, UTILITY and PROFIT as elements joined in an essential unity.

Package design STYLE is mostly predetermined by, and should be the natural sequence of, the research and study preceding the creation of the package design. The ART is in the interpretation of the factors governing package design plus creative resourcefulness. This conception of package design is what we have to offer you.

We design the complete package in its combined ensemble (i. e., everything that constitutes the presentation of the product to the consumer); or any part thereof. We determine the physical construction of the package as well as its shape and decoration, and recommend new methods of packaging where necessary and practical.

We make package analyses of a single article or an entire line of products, submitting detailed recommendations for their improvement. We serve both manufacturers and agencies. We do not manufacture containers. Our ideas and opinions, therefore, are absolutely unbiased. Our complete package design service, or any part thereof, is available to you.

Consultation involves no obligation.

PACKAGE DESIGN CORPORATION, 8 MURRAY ST., NEW YORK

XUM

PACKAGE DESIGN CORPORATION

EIGHT MURRAY ST.
NEW YORK

January, 1932.

Gentlemen:

To redesign your package is a comparatively inexpensive process. Bottles, cans, jars, tubes, boxes, labels, cartons, bags, etc., can be bought at the market price. It is the impression the complete package makes on the consumer that determines its real cost.

How could we tell our entire story in one advertisement? Each manufacturer's package design problem is different. Therefore each manufacturer seeks different information. We understand the practical mechanical phases of package design as well as the decorative. We are in our fourth year as an incorporated group; the experience of our members covers many years. The writer has specialized as a package designer for seventeen years. A list of manufacturers we have served will gladly be furnished.

Frequently our counsel has developed a new merchandising slant for the package. Would you like to hear how we redesigned a product to increase distribution to include three new classes of retail outlets? And we can cite many other interesting cases.

There is only one way to decide whether or not you can profitably use our service. Write a letter outlining your package design problem and you will receive the artist's as well as the business man's viewpoint, explaining just how and where we can aid your organization. It costs nothing to find out if we can cooperate with you.

Cordially yours,

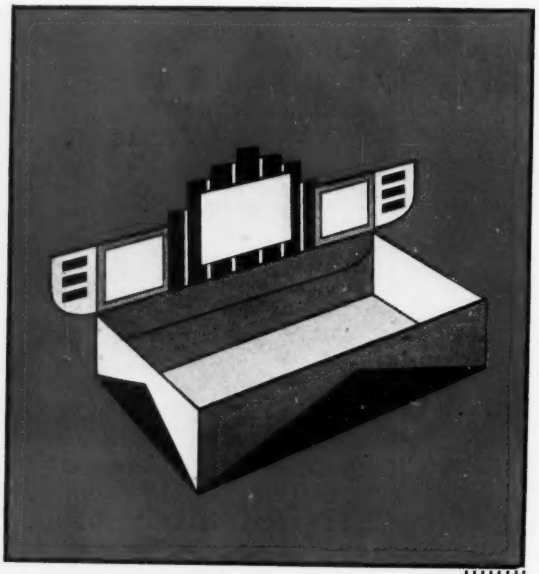
Edwin H. Scheele

EDWIN H. SCHEELE
President
PACKAGE DESIGN CORPORATION

XUM

WARNERCRAFT

THE FINEST WORD IN PACKAGING



WARNERCRAFT, due to its unique position of being equipped to design and manufacture for its customers a complete line of various types of boxes used in modern packaging, is in the enviable position of being able to work with you on your packing problems with an absolutely unbiased opinion. If a folding box is best adapted to your product, we are ready to design and make it; or probably it should be a set-up package, wooden case, or molded container. When planning your package, why not avail yourself of WARNERCRAFT'S service?

FOLDING BOXES

. . . best adapted to those products demanding inexpensive packages and offering a large opportunity for general advertising value on the package itself. A folding box may be a definite container, or it may have the double advantage of being a container and counter display.

FANCY SET-UP PACKAGES

. . . used for those articles requiring a more rigidly constructed package at a slightly higher price than a folding box. In a set-up package one is able to make use of a tremendous variety of fancy and plain papers, with or without printed designs, in many combinations; and such boxes may be made with many types of paper and cloth linings for the background setting of your article.

FANCY SET UP PAPER BOXES

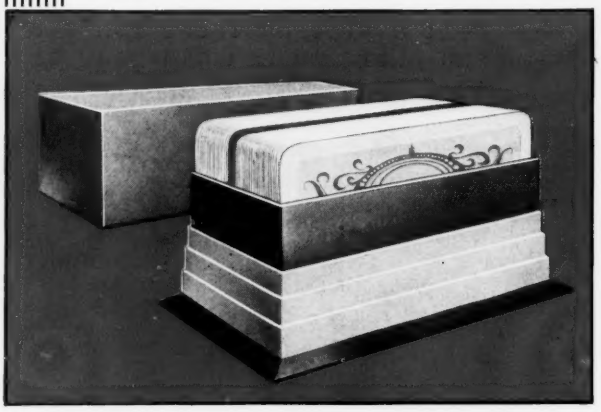
FOLDING BOXES

MOLDED BOXES & CONTAINERS

ARTISTS & DESIGNERS ALWAYS AT YOUR SERVICE

Four characteristics are the foundation of WARNERCRAFT'S organization.

ORIGINALITY of design
QUALITY comparable only to the finest
VALUE comparable to any
SERVICE to meet every demand

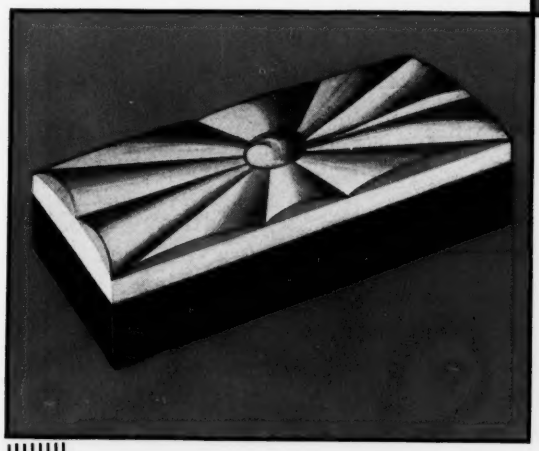


XUM

OFFERING A COMPLETE LINE OF BOXES TO ANSWER EVERY KIND OF PACKAGING PROBLEM

WOODEN CASES

. . . substantial containers used where strength is essential and where the product is to be carried for an indefinite period of time in its daily use. Such cases may be made with fancy paper coverings, lacquered, or hand painted. Also readily adapt themselves to lining such as Velour, Satin, Velveteen, etc., for a background for your article.



MOLDED CONTAINERS

. . . the newest and latest development in modern packaging, adapted to those articles for which one desires the package for permanent use, and also where a future utility value for the duration of a lifetime is desired. Many molded containers are originally designed to carry the articles to the customer, and after the consumption of the articles, they are utilized for cigarette cases, sewing cases, and many other thousands of uses

Advise us of your packaging needs and we will gladly submit samples and suggestions for your consideration without charge; or have our representative call on you to personally discuss with you your packaging requirements.

THE WARNER BROTHERS CO.

BRIDGEPORT CONN.

New York Office: 200 Madison Ave.

FANCY SET UP PAPER BOXES

FOLDING BOXES

MOLDED BOXES & CONTAINERS

ARTISTS & DESIGNERS ALWAYS AT YOUR SERVICE

XUM

The New, More Extensive and Complete Line of

AMERICAN BEAUTY PAPERS

NEW FLOATING COLOR PROCESS PAPERS

GOLD and SILVER COATED

Now at Popular Prices

MICA SILKS

RAISED DOT PRINTS

IMITATION LEATHER PAPERS

Brand New

BRILLIANT SPARKLING CRYSTAL PAPERS

"An Eyeful of Beauty"

FANCY PRINTED PAPERS

SPARTEX

The Crystallized Cloth

PRODUCTS OF

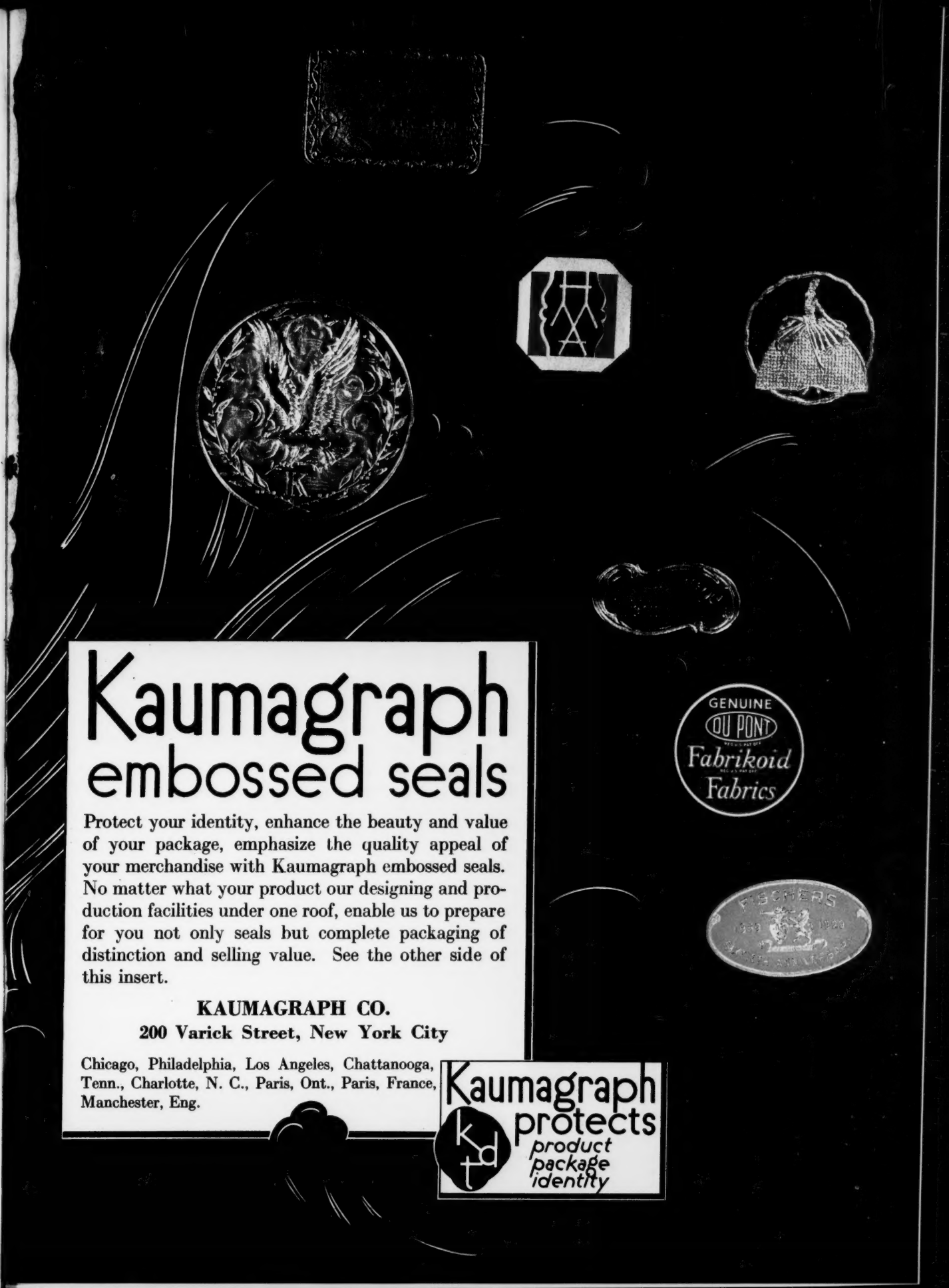
C. R. WHITING CO., Inc.

Located in Their New Plant

620-650 MAIN ST., HACKENSACK, N. J.

SEND FOR SAMPLE BOOKS

XUM



Kaumagraph embossed seals

Protect your identity, enhance the beauty and value of your package, emphasize the quality appeal of your merchandise with Kaumagraph embossed seals. No matter what your product our designing and production facilities under one roof, enable us to prepare for you not only seals but complete packaging of distinction and selling value. See the other side of this insert.

KAUMAGRAPH CO.
200 Varick Street, New York City

Chicago, Philadelphia, Los Angeles, Chattanooga, Tenn., Charlotte, N. C., Paris, Ont., Paris, France, Manchester, Eng.

Kaumagraph protects
product
package
identity

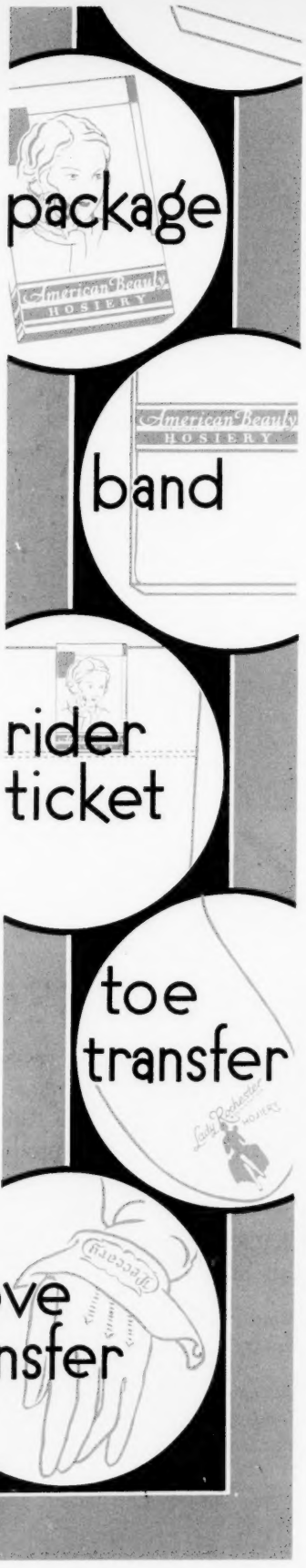
XUM

SAFEGUARD THE IDENTITY OF YOUR WORK

The dollars invested in piles of brick walls, in rows of machines or years of sales effort can be wiped out in a moment if your packaging does not establish a personality for your product. And equally important is the direct effect proper packaging has on sales.

In the old days it was enough for the daughter or niece of the president of the company to devise a pretty design. But competition is so keen today, a knowledge of production methods and costs, an understanding of sales values are such essential parts of the designer's equipment that business enterprises may not be risked to an amateur's fancy.

Kaumagraph specializes on business identity. From the inception of the trade-mark and obtaining registration in the U. S. Patent Office on through every detail in production, Kaumagraph's own organization relieves you of your packaging problems. Lithographed box wraps, labels, embossed seals, transfers for textiles;—whatever detail bothers you, or *every* detail if you wish, can be handled as elaborately or as economically as is proper for the case at hand.



KAUMAGRAPH COMPANY

200 VARICK STREET, NEW YORK CITY

CHICAGO • PHILADELPHIA • LOS ANGELES • CHATTANOOGA, TENN.
CHARLOTTE, N. C. • PARIS, ONT. • PARIS, FRANCE • MANCHESTER, ENGLAND

XUM

PNEUMATIC AUTOMATIC PACKAGING MACHINERY

PNEUMATIC SCALE CORPORATION, LTD.

NORFOLK DOWNS . (QUINCY) . MASS.

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XUM

AUTOMATIC MACHINERY FOR EVERY PACKAGING PURPOSE

FILLING • WEIGHING
LINING • SEALING
LABELLING • WRAPPING
For ALL TYPES of
CARTONS, CANS & BAGS

PNEUMATIC SCALE CORPORATION, LTD.
NORFOLK DOWNS • (QUINCY) • MASS.

XUM

PACKAGING GOODS AUTOMATICALLY
The Pneumatic Way

•

ORIGIN AND DEVELOPMENT

CUSTOMS change in the methods of purchasing food, just as in everything else. Years ago it was considered thrifty for the head of the family to go to the store and buy supplies in quantity or bulk:—flour and sugar by the barrel, butter by the firkin, and such edibles as crackers, beans, rice, starch, tea, coffee, salt, spices, and many others, loose or by the pound.

And in the past such a method may have been economical and sensible. But times change. The old-time commodious kitchen, the large pantry with plenty of storage space, both are becoming extinct. So to a large extent is the cook herself.

In fact, the modern larder would be swamped by the vast quantities of foodstuffs our ancestors used to buy at one time. This is due in large measure to the fact that an ever-increasing percentage of the population of cities are living, not in spacious, separate dwellings, but in apartment houses where every inch counts. It has become automatically impossible to indulge in the habit of buying ahead a surplus of anything—from bird-seed to oatmeal, from crackers to cloves.

Nowadays the housekeeper finds it convenient, economical, and preferable, to purchase in small quantities.

Understanding this, the manufacturerand retail dealer met the demand by selling innumerable sorts of necessities and conveniences of life (ranging from cooked foods to cosmetics) in packages, cartons, and cans. In this way, the consumer is given the added advantage of procuring that exact brand which he prefers, knowing in advance precisely what he will get for his money.

How has this been made possible? The answer is simple:—through the invention and development of packaging machinery.

By such means the manufacturer can place at the disposal of his critical consumer the particular commodity desired. And he can be sure of having his product and its quality instantly recognized and appreciated. Thus this packaging machinery not only protects good will, it results in a positive advertising value impossible in the days when goods were sold in bulk with no recognizable mark.

These methods made possible by packaging machinery have also revolutionized commercial methods—to their improvement.

XUM

A Pioneer With Over Forty Years' Experience

FROM its earliest and simplest beginning it has developed its system by steadily meeting the ever-increasing requirements which naturally resulted from the expansion of the package goods business produced by the introduction of its earlier machinery.

Thus have come in response to distinct needs, and as a matter of logical growth, the various later operations that have given the system its present completeness.

In order to serve in reasonably quick time the ever-increasing demands prevailing for its production, this company has completed its ninth addition to its plant which has increased fourfold the floor space it previously occupied.

Its plant is up-to-date in every detail, the factory buildings being of reinforced concrete, equipped with new machinery of the latest and most approved types.

Among its customers are the largest producers in the country, the best known national advertisers, whose names are familiar in every home.

●

The Following Products Can be Handled Most Successfully by

PNEUMATIC PACKAGING MACHINERY

BARLEY-PEARL	HOMINY	RICE
BEANS	INFANT'S FOOD	SALT
BORAX	MACARONI	SALTS—EPSOM
BRAN	MOTH BALLS	SEED—BIRD
CEREALS	MUSTARD	SOAP CHIPS
CHOCOLATE & COCOA	NAPTHA FLAKES	SODA—BAKING
COCOANUT	NOODLES	SODA—BICARBONATE
COFFEE	PEAS—SPLIT	SODA—SAL
CORN MEAL	POULTRY AND STOCK REMEDIES	SPAGHETTI
CREAM OF TARTAR	POWDER—BAKING	SPICES
CRUMBS—BREAD	POWDER—FACE	STARCH
DRIED FRUITS & VEGETABLES	POWDER—JELLY	SUGAR
DRUGS	POWDER—PHOTO FIXING	SULPHUR
FARINA	POWDER—SOAP	TAPIOCA
FLOUR	POWDER—TALCUM	TEA
GELATINE	POWDER—TOOTH	VERMICELLI

NOTE: Machines seal cartons in which are packed Inner Tubes, Baseballs, Golf Balls, and other articles of such a character that cannot be weighed automatically. Can Capper can be used for applying lids to cans on goods that cannot be weighed automatically.

XUM

Suggestions for Procedure

WHEN DESIGNING CARTONS AND LABELS

for Machine Production

THE present tendency with manufacturers of packaged products, both dry and liquid, is to stress the design of their package in an effort to beautify the design and make it so striking that it will stand out from its competitors. Many of these designs are produced by artists of note, or perhaps by the advertising department.

Oftentimes, the artists or advertising men, capable in their particular lines, lose sight of the fact that the package designed, which will be produced in quantity by machine, must be held within certain limitations to permit of practical machine production.

Cartons with extraordinary broad panels are designed so that a larger advertising surface may be presented when the package is on the merchant's shelf. Consequently, the side panels of the package become too narrow to be handled rapidly by a machine. Elaborate designs in wrappers are produced. While beautiful in themselves, they do not permit of the accurate and rapid registering necessary when passed thru a machine.

The same thought applies, particularly, to modern bottle and jar design, many of them beautifully modernistic, but utterly impractical from a machine handling standpoint.

It is suggested that in every instance where a new package or wrapper is being considered that models of the new design be submitted to the manufacturer of the machine that must handle it so that the machine manufacturer can offer his suggestions and assure the user of the new design that his package, or wrapper is going to be practical from the machine handling standpoint.

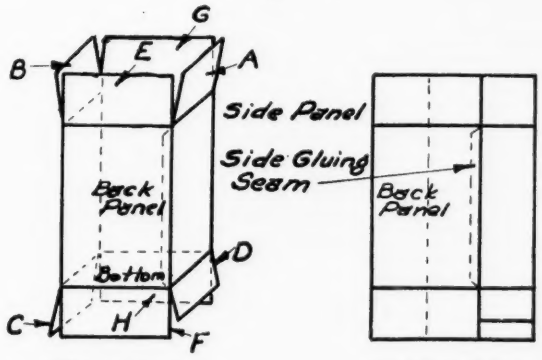
The Pneumatic Scale Corporation maintains an advisory department for this very purpose. We will be very glad to have you utilize the service of this department, without obligation or cost. Send us samples of your packages or wrappers for our constructive suggestion.

XUM

CARTON CONSTRUCTION

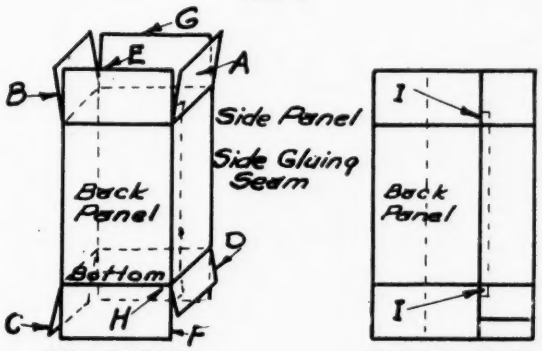
FOR HANDLING ON AUTO. CARTON FEEDER

No. 1



OPEN CARTON KNOCKED DOWN

No. 2



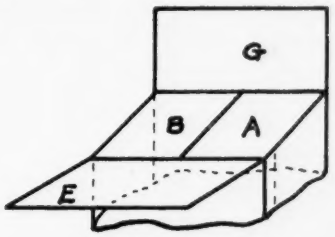
OPEN CARTON KNOCKED DOWN

No. 1 — REMARKS

This type of carton is recommended as being the best and most substantial for use on the carton feeder. The side gluing seam is part of the side panel and is glued to the back panel so that the entrance of the opening knife will not tear or rip the seam open.

No. 2 — REMARKS

In this type of carton, the side gluing seam is attached to the back panel and glued to the side panel. It also extends about 1/2" beyond score lines as shown at "I", Fig. 2, to prevent leakage of powdered goods at corner due to poorly made carton or insufficiently glued seam.



SEE NOTES 3 AND 4

No. 1. On the ideal carton, the width equals twice the thickness and the height between score lines is about 1-2/3 times the width.

No. 2. Printing should read so that top of carton will be as it is shown on drawing.

No. 3. Flaps A and B should not be long enough to overlap each other when folded in.

No. 4. Flaps A, B and C should not be longer than E, G and F, H.

No. 5. Flap D should be 3/8" to 1/2" shorter than F and H.

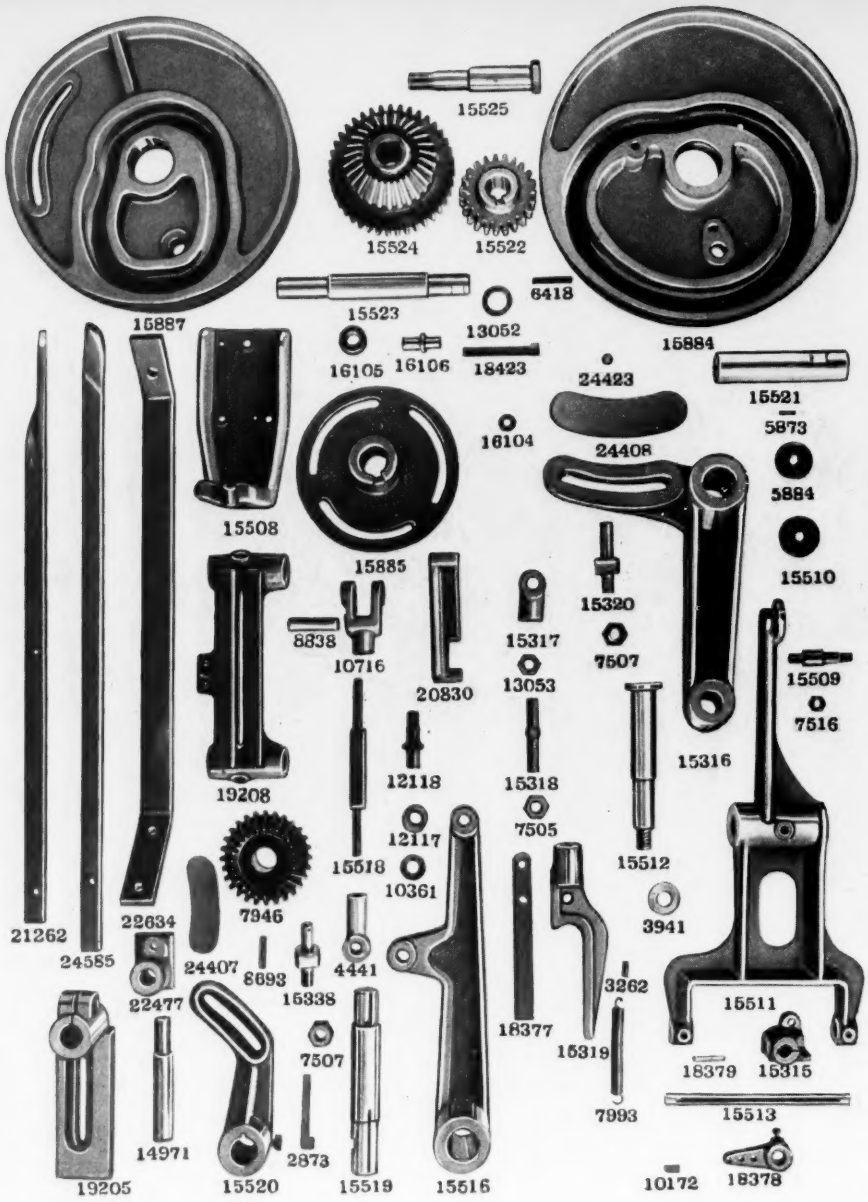
No. 6. Flaps A, B, C, D, E and F should not be printed or have any ink on them whatever, as they have to take the glue for sealing and glue will not penetrate thru an inked surface. If it is necessary to have an inked margin on these flaps, it should not exceed 1/16" wide.

No. 7. The side gluing seam should extend 1/2" to 3/4" above score line. See "I".

No. 8. The width of the side gluing seam should be from 3/8" to 5/8", depending on size of carton.

No. 9. Grain of cardboard should run around carton, not up and down.

XUM



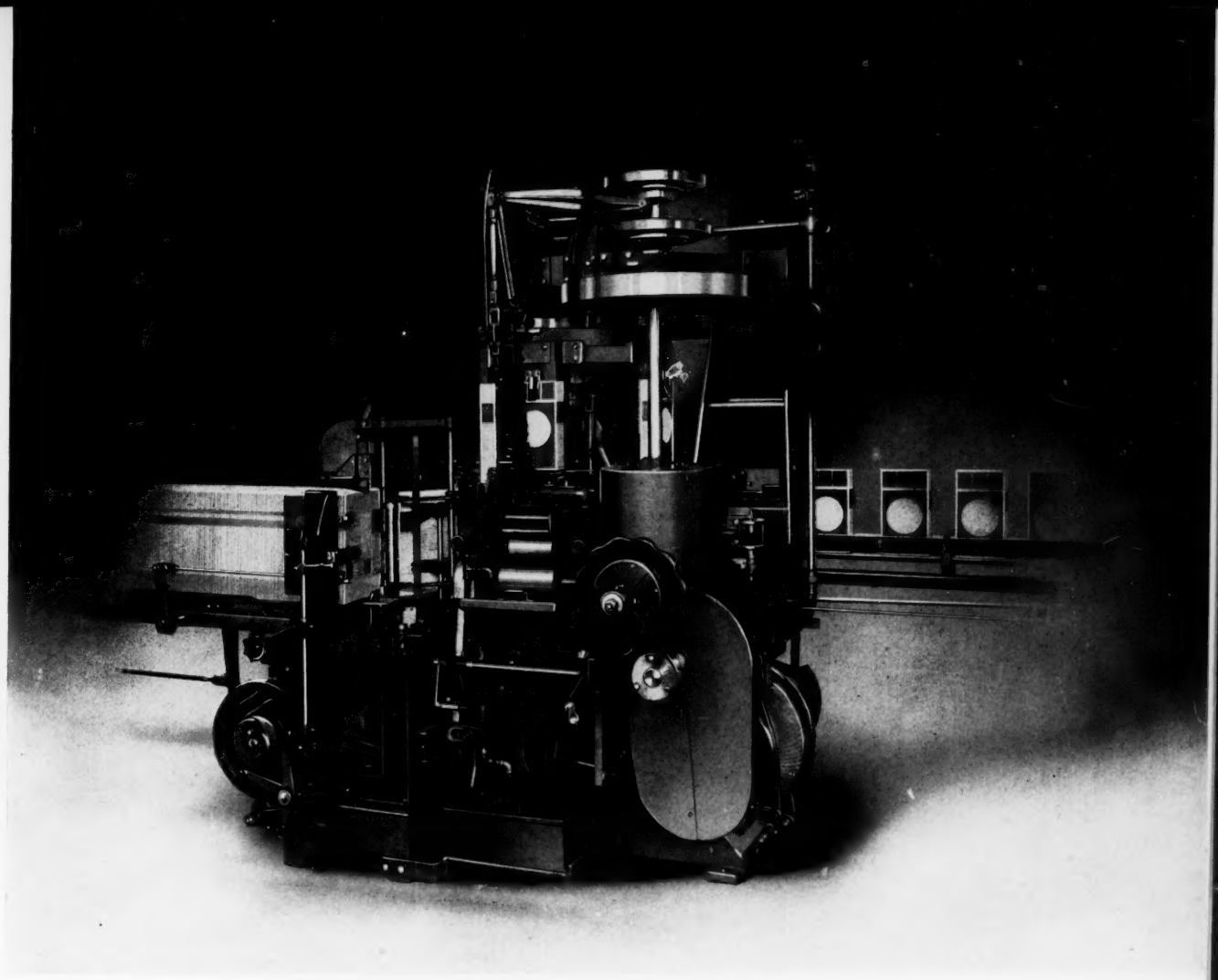
SAMPLE PAGE MACHINE PARTS CATALOG

A stock of over $400,000 worth of interchangeable jig made parts constantly on hand. All parts have numbers stamped on them, and a special Catalog of each machine, showing its parts and numbers, is furnished each customer for convenience in ordering by letter or telegraph. A sample page taken from our Machine Parts Catalog of Carton Feeder is shown above.

Technically trained field engineers are permanently located at strategic points in order that users of Pneumatic Equipment may be assured of prompt and efficient service.

Pneumatic Service means REAL service.

XUM



PNEUMATIC HI-SPEED BOTTOM SEALER

Class No. 1117

operating with

PNEUMATIC HI-SPEED CARTON FEEDER

Class No. 8213

SPECIFICATIONS

RANGE—Will handle cartons within the following sizes:—

Minimum—1″ thick, 2″ wide, 3¼″ high (between score lines)

Maximum—3¾″ thick, 6¼″ wide, 9¼″ high (between score lines)

Note: Minimum and maximum sizes cannot be handled on the same machine.
Highest operating efficiency obtained when number of sizes limited to four.

EQUIPMENT—Cost of machines includes equipment to handle one size package. Equipment for additional sizes extra.

SPEED—60 packages per minute.

FLOOR SPACE—(including Hi-Speed Bottom Sealer and Carton Feeder) 13′5″ x 5′.

OPERATOR—No operator required. Attendant only to replenish reservoir of Carton Feeder twice an hour.

WEIGHT—Carton Feeder—from 2200 to 2300 lbs.
Bottom Sealer —from 4300 to 4500 lbs.

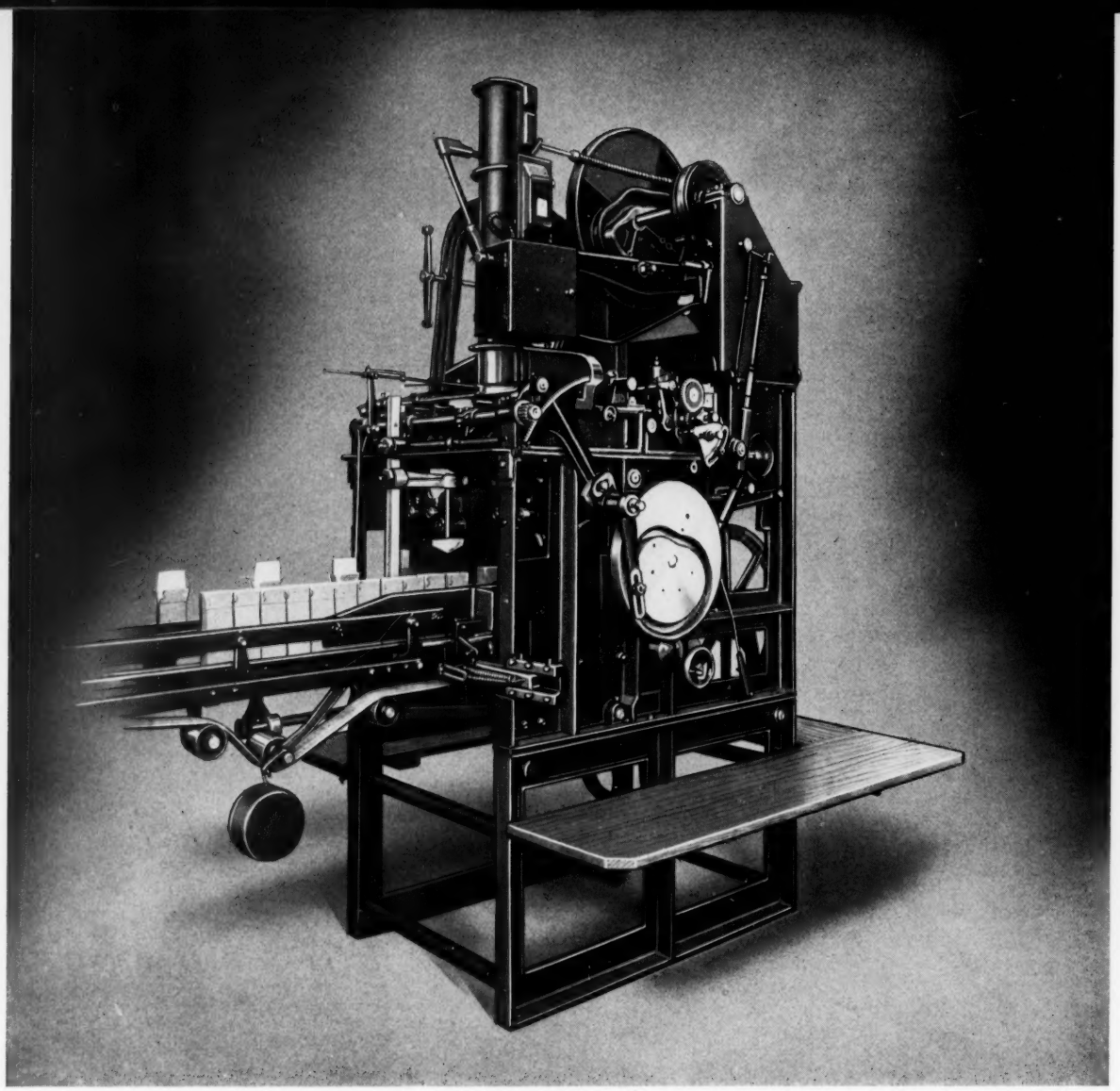
HORSEPOWER—1½ HP required for both machines. The Carton Feeder is driven and operated from Bottom Sealer. Cost of machine includes motor. Countershaft drive can be furnished when required.

ADJUSTABILITY—About 45 minutes required to change from one size package to another.

CONVEYORS—Can be equipped with either single or double conveyors. Double conveyors include device to separate the cartons or other containers into two lines; each line feeding to lining or weighing machines, operating at 30 containers per minute.

DATING DEVICE—A device for blind stamping date or identification mark on packages can be furnished as extra equipment and attached to this machine.

Note: Other types of Carton Feeders and Bottom Sealers include standard machines operating at speeds of 30 per minute.



PNEUMATIC AUTOMATIC LINING MACHINE

Class No. 4142

Materials affected by changes in atmospheric conditions require additional protection. This is provided by the use of the Pneumatic Automatic Lining Machine which cuts a proper size piece of paper from a roll, forms it to the shape of the container and inserts it, the paper lined container then passing along to the filling machine.

SPECIFICATIONS

RANGE—Will handle cartons of the following sizes:—
Minimum—1½" thick, 3" wide, 5½" high (between score lines).
Maximum—5" thick, 8" wide, 13-15/16" high (from bottom score line to upper edge of top flap).

EQUIPMENT—Price includes equipment for one size package only. Equipment for additional sizes extra. Machines will handle either parchment, glassine, foil, wax and other papers.
Standard machines are supplied for either glue seal for parchment or glassine paper; hot seal for wax papers or hot paraffine seal for foil.
Machines can be equipped for both glue and hot seal on special order.

SPEED—28 to 30 packages per minute.

FLOOR SPACE—6'1" x 7' x 8'9" high. (Conveyors not included.)

OPERATOR—One operator required when machine is used alone. No operator required when used in connection with other machines.

WEIGHT—Domestic Shipping—4,500 lbs.

HORSE-POWER—¾ HP required. Can be equipped with individual motor drive.

ADJUSTABILITY—Machines flexible and adjustable to several sizes within reasonable range. Requires about 45 minutes to change from one size package to another.

NOTE: Lining machines are in two models, each handling a separate range of carton sizes. Cartons 2½" high to 13-15/16" high (from bottom score line to upper edge of top flap) can be handled on one or the other model.

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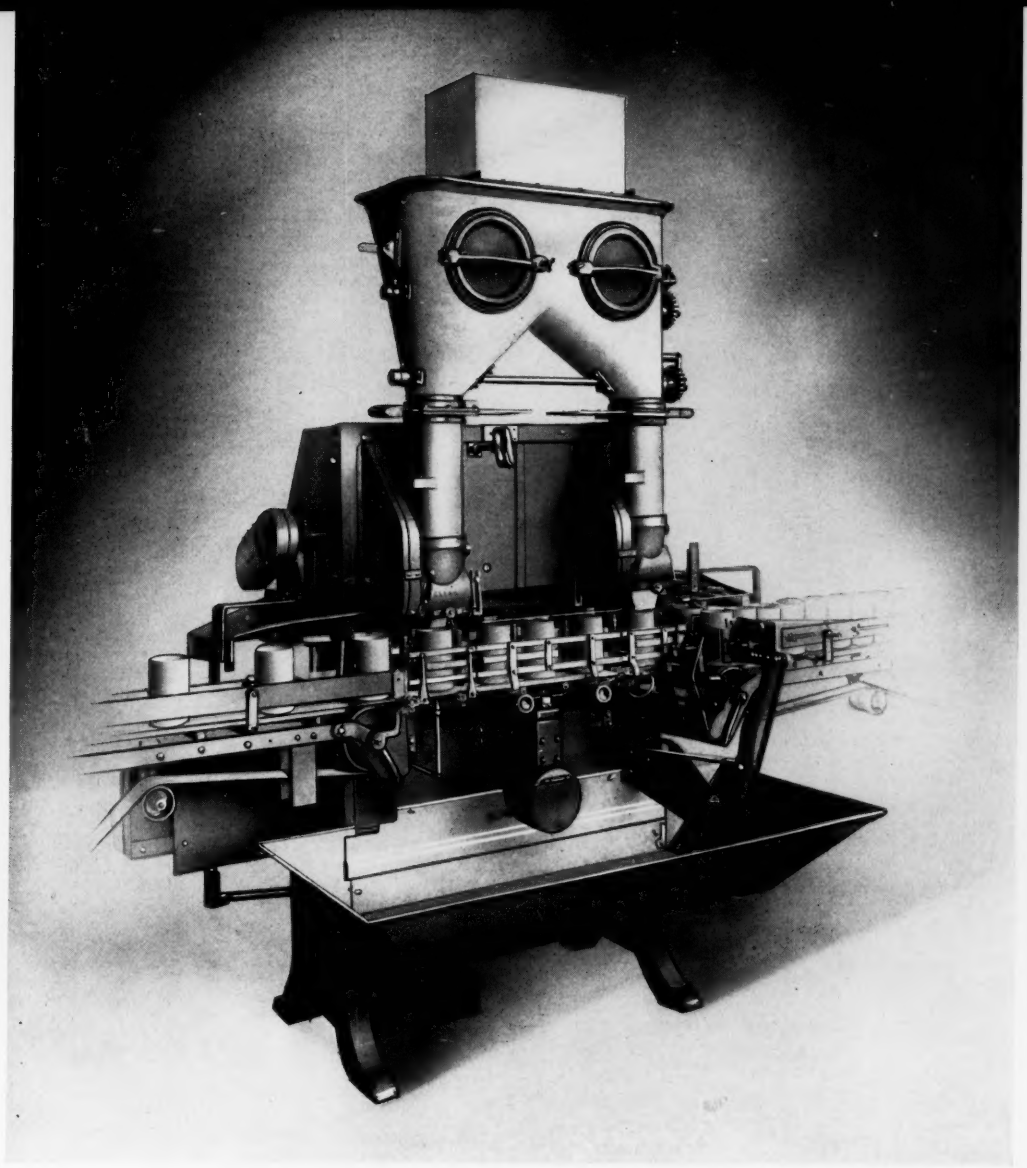


PNEUMATIC AUTOMATIC GROSS WEIGHT WEIGHING MACHINE TWO SCALE STRAIGHT LINE TYPE

Pneumatic Weighing Machines have always been accepted as the standard to which all others aspire.

The Two Scale Weighing and Filling Machine illustrated is the staunch, refined product of years of experience in solving difficult weighing problems.

A perfect, accurate machine handling not only all free flowing material but many semi-free flowing or rigid materials which tend to bridge or clog machine hoppers.

SPECIFICATIONS

RANGE—Will handle cartons of the following sizes:—Minimum—1" thick, 2" wide, 4½" high (between bottom score line and upper edge of top flap). Maximum—4" thick, 7¾" wide, 13-15/16" high (between bottom score line and upper edge of top flap).

EQUIPMENT—Equipped for one size package only. Equipment for additional sizes extra.

SPEED—25 to 30 packages per minute, depending on size of package and nature of goods.

ACCURACY—1/16 oz. plus or minus weight specified.

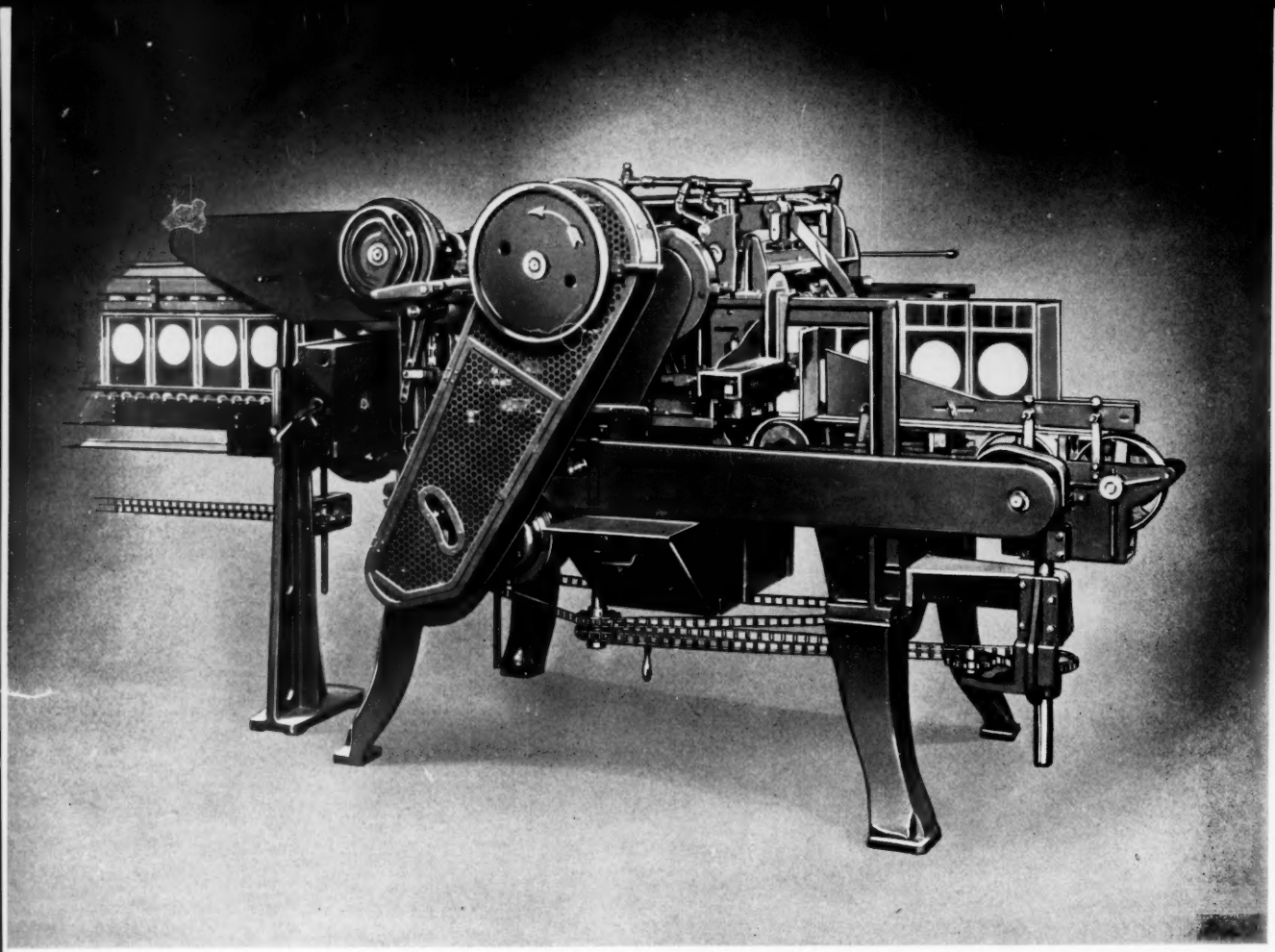
FLOOR SPACE—5'6" x 3'6" x 8' high approximately. Height varies according to available head room. (Conveyors not included.)

OPERATOR—One operator required when machine is used alone. No operator required when used in connection with other machines.

WEIGHT—Domestic Shipping—2500 lbs.

HORSE-POWER—½ HP required. Can be equipped with individual motor drive.

ADJUSTABILITY—About 15 minutes required to change from one size package to another. When changing from one material to another, Hoppers and Machine must be thoroughly cleaned, requiring about one hour's time.



PNEUMATIC AUTOMATIC HI-SPEED TOP SEALING MACHINE

Class No. 3122

The usual difficulties in sealing the top flaps of cartons have been overcome with this newly refined Top Sealing Machine. High speed operation is attained with a precision and smoothness which "float" the filled cartons through the machine without danger of spilling the contents.

A new glue feed control prevents glue splashing on machine or belts and glue supply requires replenishing but once a day.

Ingenious devices accumulate into one line the output of two slower operating weighing machines. A turning device to turn the sealed cartons broadside on the dryer belt doubles the drying time insuring a tighter seal.

SPECIFICATIONS

RANGE—Will handle cartons of the following sizes:
Minimum—¾" thick, 1¼" wide, 2½" high (between score lines).
Maximum—4⅜" thick, 7¾" wide, 9⅜" high (between score lines).

EQUIPMENT—Equipped for one size package only. Equipment for additional sizes extra. Accumulating device furnished when necessary at no additional charge. Turn-around device for placing cartons crosswise in Dryer will be charged for as additional equipment.

SPEED—60 packages per minute.

FLOOR SPACE—6'6" x 4'6" x 5'7" high approximately. (Dryer not included.)

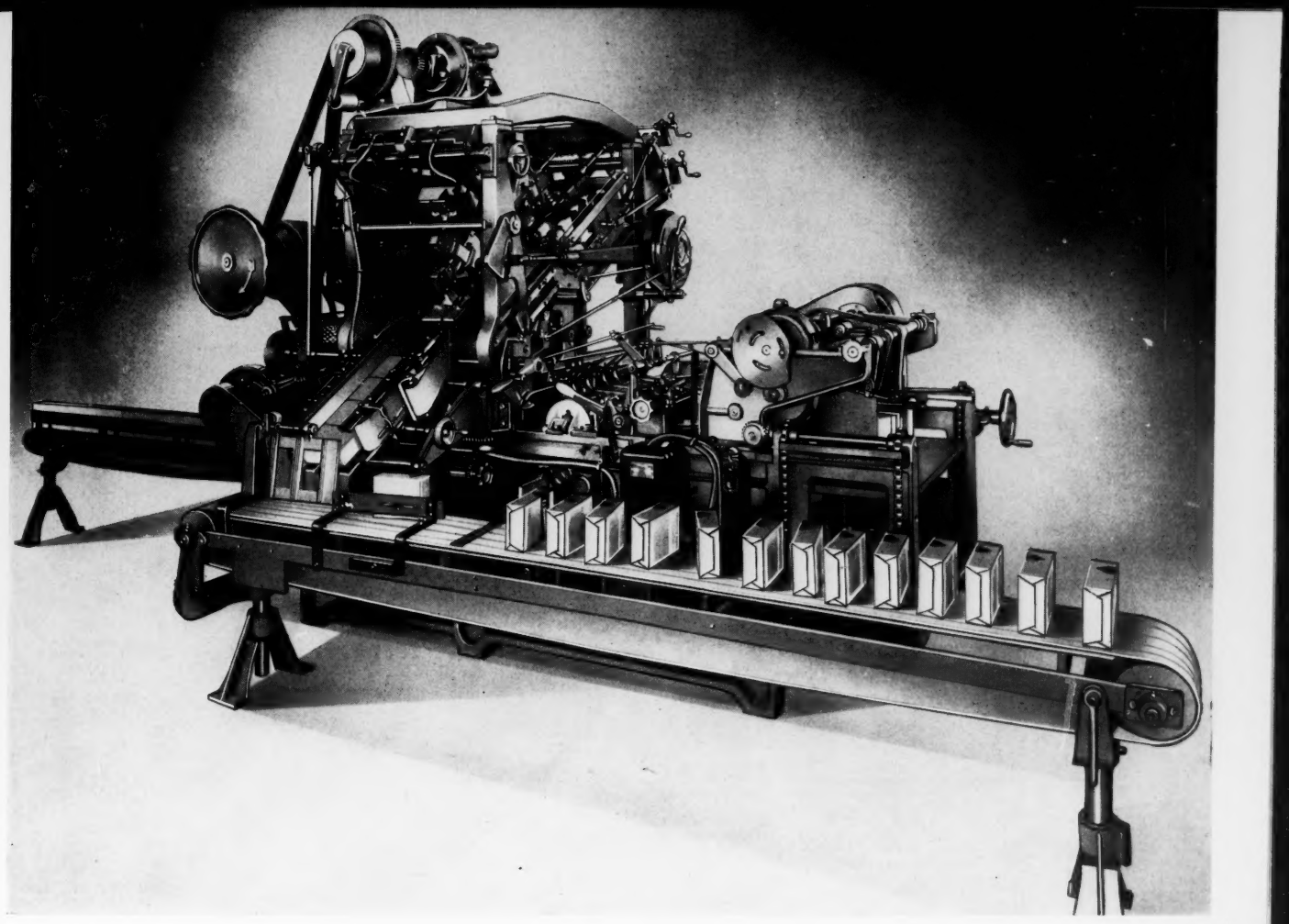
OPERATOR—One operator required when machine is used alone. No operator required when used in connection with other machines.

WEIGHT—
Domestic Shipping—2700 lbs. with 10' Dryer.
Domestic Shipping—3200 lbs. with 16' conveyor dryer.

HORSE-POWER—¾ HP required. Price of machine includes motor.

ADJUSTABILITY—From 15 to 30 minutes required to change from one size package to another.
A device for counting number of packages sealed can be furnished as extra equipment and attached to this machine.

XUM



PNEUMATIC AUTOMATIC HI-SPEED TIGHT WRAPPING MACHINE

Class No. 5213

Tight Wrapping provides the ultimate in protection to packaged products, particularly when the wrappers are applied by the Pneumatic method.

By using a straight-cut, rectangular wrapper, a positive triple seal is obtained at each corner of the package. Unless these corners are properly protected, material such as flour and cereal are subject to weevil infestation.

Straight cut wrappers are less expensive, easier to handle, and produce the strongest type of package.

SPECIFICATIONS

RANGE—Will handle shells within the following sizes:—
Minimum 1½" x 2⅝" x 4¼" (between score lines).
Maximum—(standard machine) 3¾" x 6½" x 10⅛" (between score lines).
Maximum—(special machine) Refer to home office for information.

EQUIPMENT—Price includes equipment for one size package only. Equipment for additional sizes extra.

WRAPPERS—Layout of Wrapper, showing correct location of panels, etc., furnished on request.

SPEED—60 wrapped packages per minute.

FLOOR SPACE—10' x 6'6" x 8'3" high (conveyors not included).

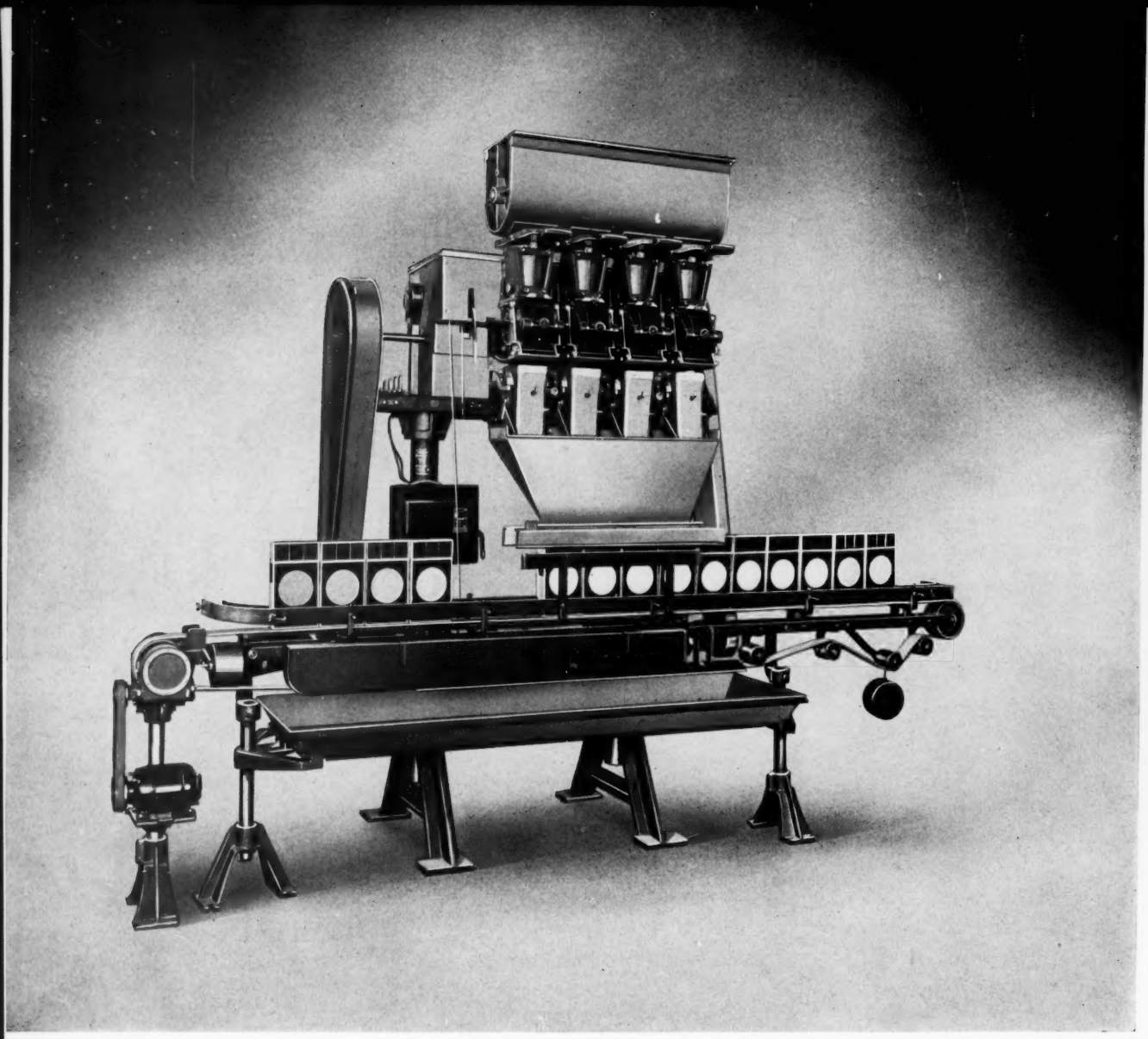
OPERATOR—One operator required.

WEIGHT—Domestic shipping 8900 lbs.

HORSE-POWER—1½ HP required. Price includes individual motor. Countershaft drive furnished, if desired.

ADJUSTABILITY—The Tight Wrapper is not readily adjustable. The most difficult adjustments are when all four dimensions of a package vary. When this occurs about four hours will be required to change from one size to another.
Frequent changes and adjustment are not recommended.

Note: The Pneumatic Tight Wrapper can be furnished in a smaller type to wrap packages of the following dimensions:
Minimum—1⅛" x 1¾" x 2¾".
Maximum—2" x 3¾" x 7".



HI-SPEED NET WEIGHT WEIGHER

Class No. 2600 to 2607

Weights and Measures Bureau officials are rigidly enforcing the laws governing correct weights of goods in packages.

Full weight packages are necessary. Over weights mean serious losses. This new type multiple Net Weight Weigher assures accurate weights at a high speed. It is the standard machine with packers who demand quantity production with a smooth, even, dependable operation.

SPECIFICATIONS

RANGE—Will handle round and rectangular containers of the following sizes:

Round
Minimum—1½" Dia. x 2½" high. Maximum—6¾" Dia. x 13-15/16" high.

Rectangular
Minimum—1" x 2" x 2½" high. Maximum—4" x 7" x 13-15/16" high (from bottom score line to upper edge of top flap).

Maximum Capacity of either round or rectangular containers must not exceed 200 cubic inches.

EQUIPMENT—Equipped for one size. Equipment for additional sizes extra.

SPEED—60 per minute.

ACCURACY—1/10 oz. plus or minus weight specified.

FLOOR SPACE—4'3" x 5' x 9'2" Approx. (Conveyors not included).

OPERATOR—One operator required when machine is used alone. No operator required when used in connection with other machines.

WEIGHT—Domestic Shipping—2500 to 4500 lbs. depending upon type of machine.

HORSEPOWER—½ HP motor. Price of machine includes motor.

ADJUSTABILITY—About 30 minutes required to change from one size to another.

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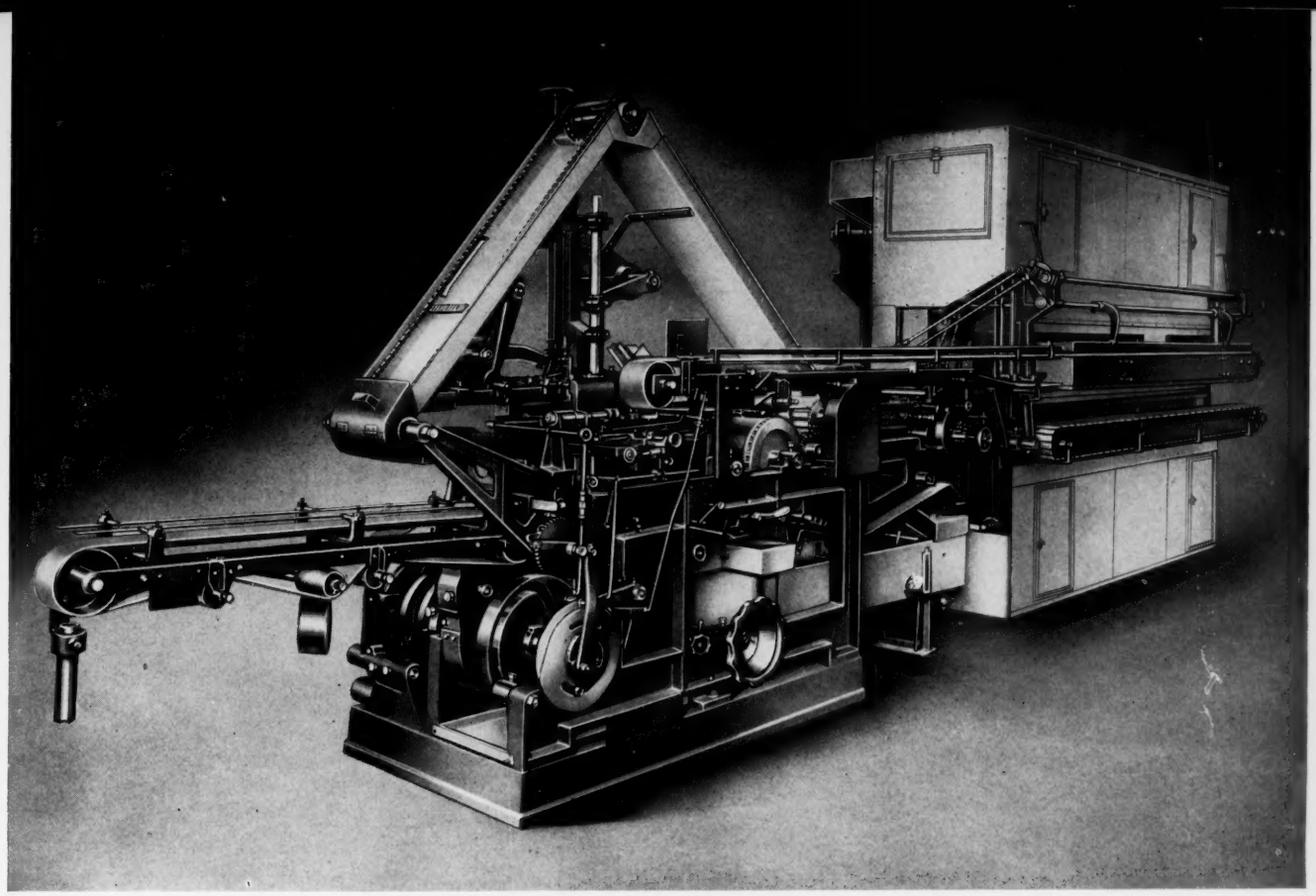

PNEUMATIC SHRINK-TIGHT-LABELING MACHINE WITH DRYER

Labeler Class No. 5511—Dryer Class No. 9111

The one labeling machine which will process the labels allowing the paper to stretch or expand before applying to containers. Labels are glued all over and registered to containers which pass automatically to the dryer.

The Dryer is filled with a series of shelves which travel slowly, permitting about 30 minutes drying time for each customer.

By this process, the moisture in the label is slowly withdrawn, the label shrinks to its original size and binds tightly to and around any irregularities in the container.

The only labeling machine that will tightly shrink labels around containers with high beads, or containers with covers larger than the bodies.

Each machine can be operated as a separate unit, if desired.

SPECIFICATIONS

RANGE—Either machine will handle round and rectangular cans and containers of the following sizes:—

	Round	Rectangular
Minimum	1½" diameter, 2½" high	1" x 1½" x 2½" high
Maximum	4¼" diameter, 7¼" high	4" x 4½" x 7¼" high

EQUIPMENT—Price of machine includes equipment for one size can or container. Equipment for additional sizes extra.

SPEED—25 to 30 cans per minute, depending on size of cans.

FLOOR SPACE—Can Labeler 7'6" x 3'8" x 7'6" high (Conveyors not included).

Can Dryer 14'8" x 8' x 10' high.

OPERATOR—One operator required to feed cans into labeling machine.

WEIGHT—

Domestic Shipping—Labeler 6,500 lbs.

Domestic Shipping—Dryer 9,100 lbs.

HORSE-POWER—1¾ HP required for both machines, when Dryer is attached to and driven from the Labeling Machine.

¾ HP required for Dryer when operated separately.

⅞ HP motor required to drive Air Fan on Dryer.

Price of machine includes motors.

ADJUSTABILITY—About 45 minutes required to change from one size container to another.

HEAT—Dryer is equipped for Steam Heat only. Can be arranged for gas heat if required for special cases.

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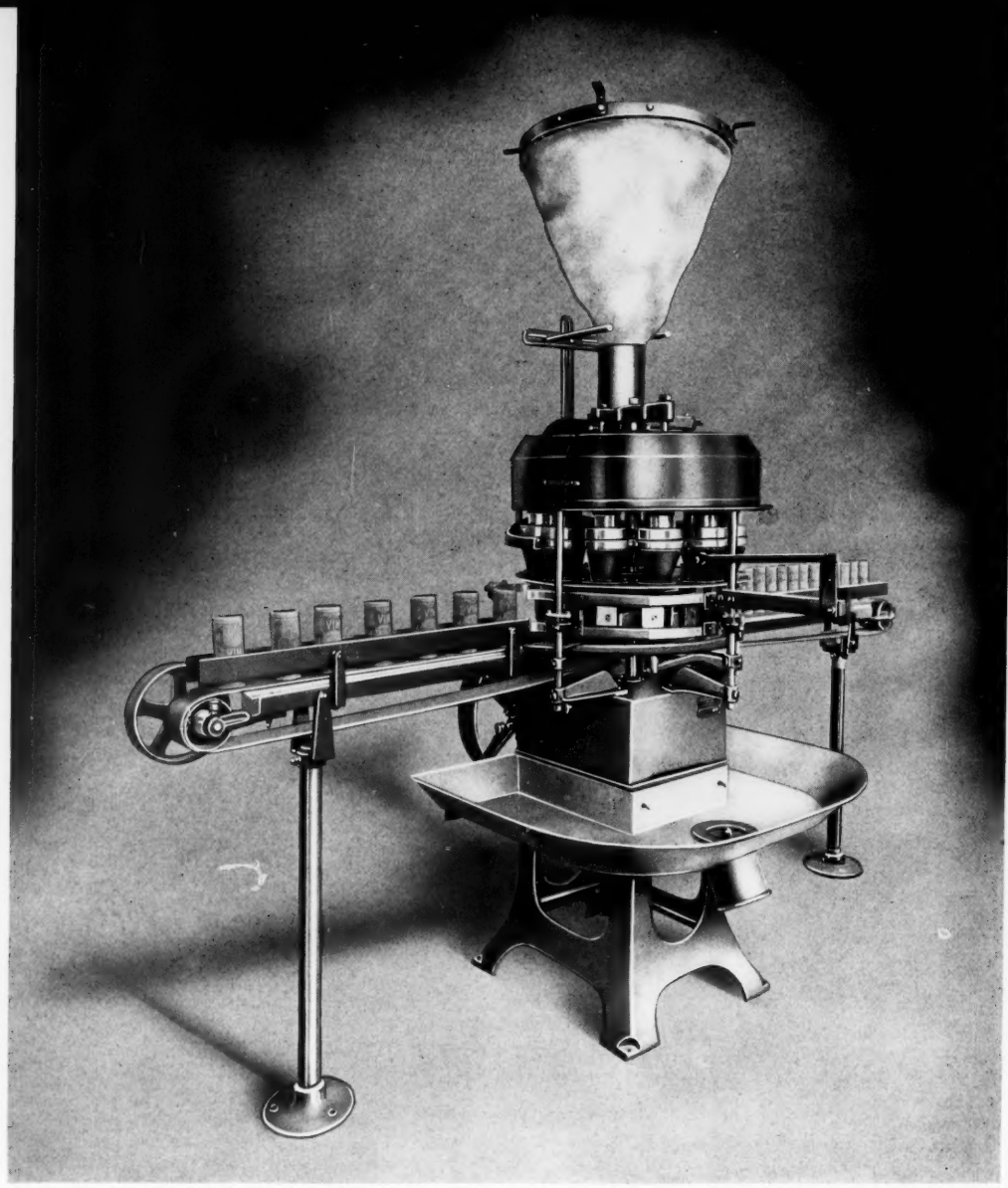

PNEUMATIC CAN FILLER

Class No. 7111

Designed principally for scouring powders and other material of an abrasive nature. Can Filler is strictly a measuring machine and does not weigh goods.

SPECIFICATIONS

RANGE—Will handle containers of the following sizes:
Minimum—2" diameter x 3" high.
Maximum—3" diameter x 7¼" high.
Cubic capacity of containers must not exceed 50 cubic inches.

EQUIPMENT—Equipped for one size can or container only. Equipment for additional sizes extra.

SPEED—40 to 60 per minute, depending on character of material.

ACCURACY—Guaranteed within ½ oz. plus or minus weight specified.

FLOOR SPACE—3'6" x 8'6" x 7'10" high (Conveyors included).

OPERATOR—One operator required.

WEIGHT—Domestic Shipping—1700 lbs.

HORSEPOWER—½ HP required. Price of machine includes motor.

ADJUSTABILITY—Requires about 30 minutes to change from one size container to another.

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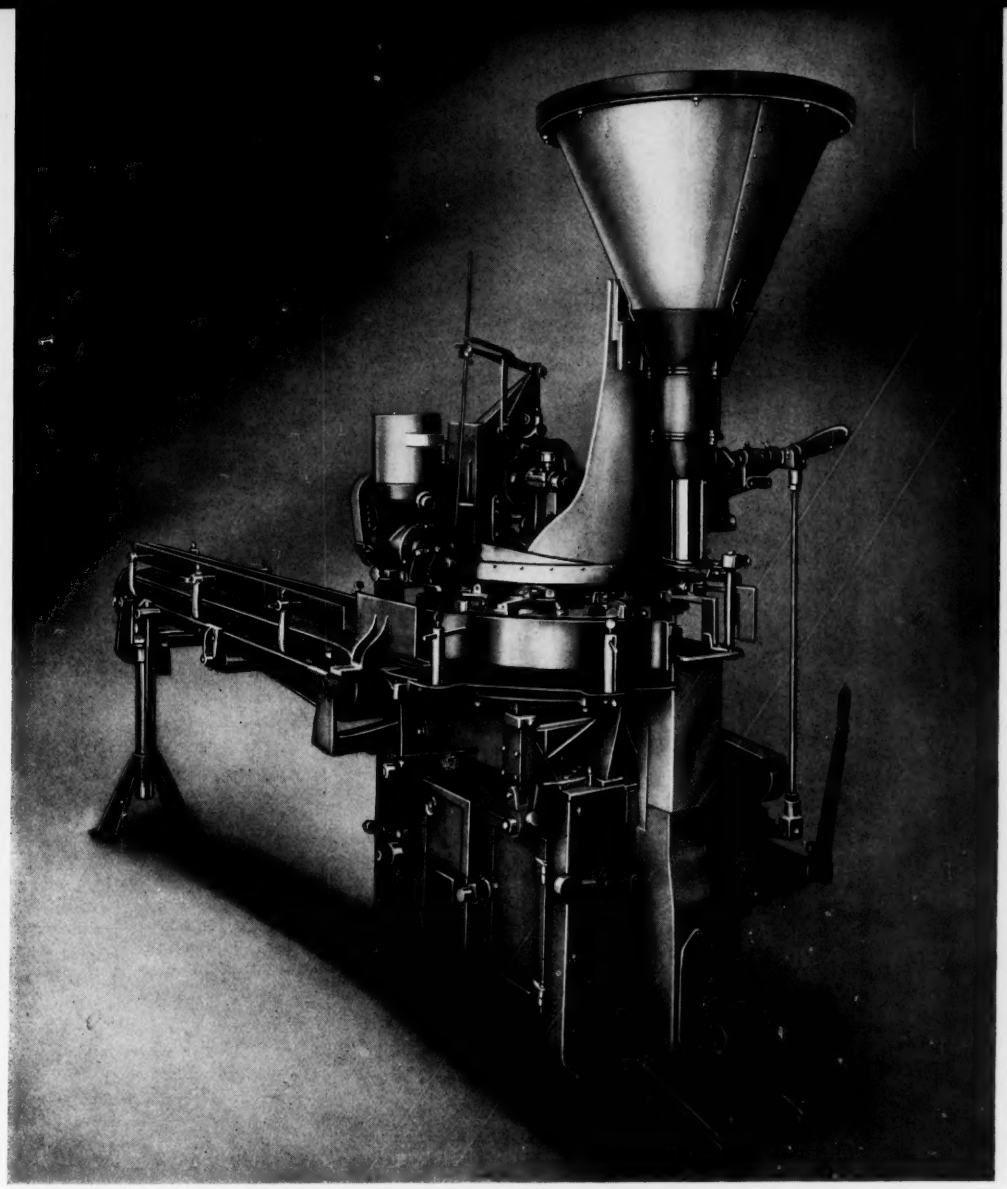


PNEUMATIC BAG FLOUR WEIGHER

Class No. 2543

Pneumatic Bag Flour Weighers are made in three sizes. Each machine will handle several sizes of bags within certain ranges.

While primarily designed for the rapid and accurate weighing of flour into cloth and paper bags, some other materials such as insecticides, calcimine, etc., can be handled to advantage.

SPECIFICATIONS

RANGE—From 2 to 7 lbs.

EQUIPMENT—Equipped to handle 2—3½ and 7 lb. bags. Equipment for additional sizes extra.

BAGS—Cloth or paper.

SPEED—14 to 20 bags per minute.

ACCURACY—Within ⅛ oz. plus or minus weight specified.

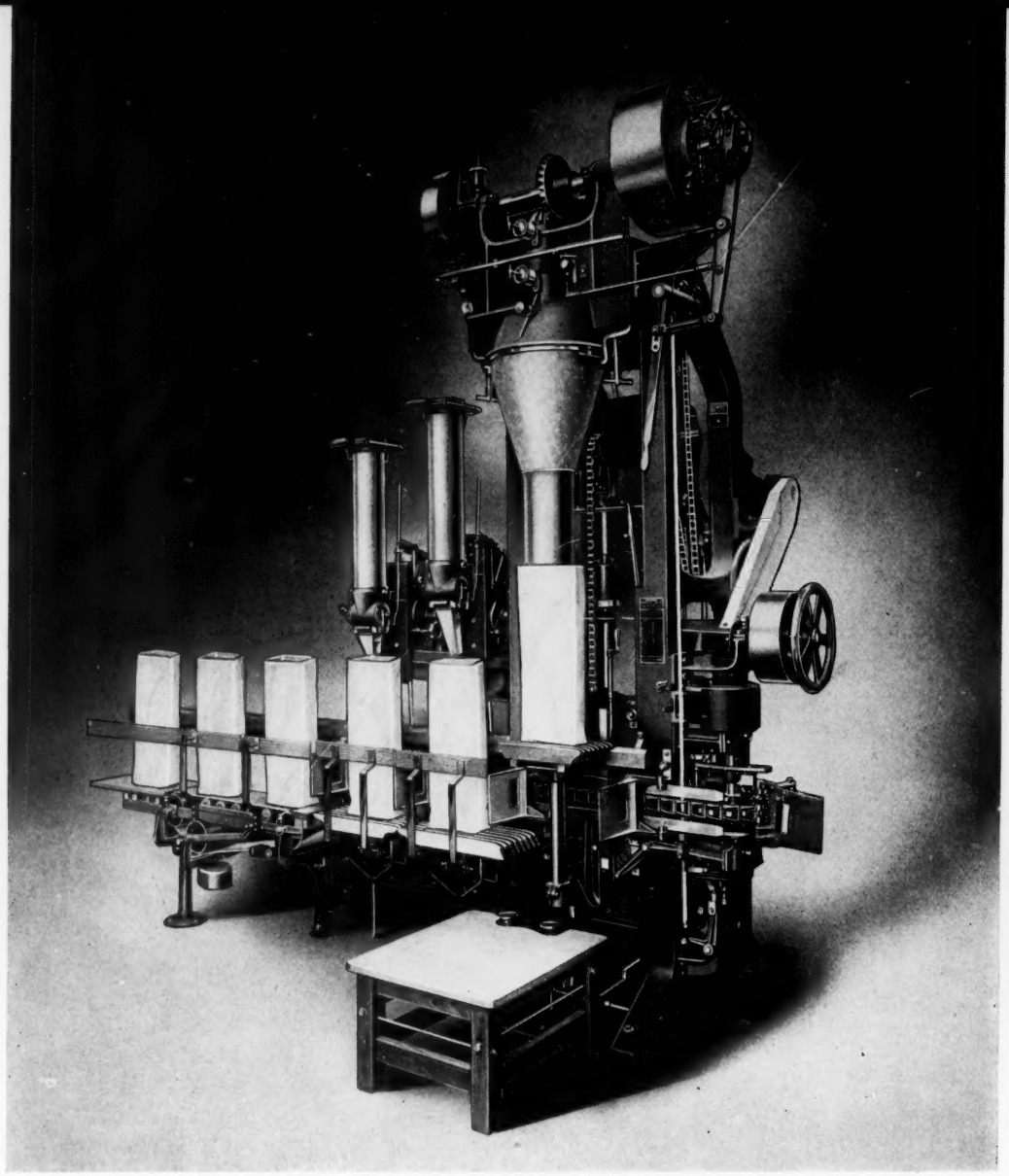
FLOOR SPACE—3'9" x 8'3" x 9'2" high.

OPERATOR—One operator required.

WEIGHT—Domestic Shipping—3100 lbs.

HORSEPOWER—7 HP required. Countershaft Drive only.

ADJUSTABILITY—Requires about 15 minutes to change from one size bag to another.



PNEUMATIC BAG FLOUR WEIGHER

Class No. 2521

Pneumatic Bag Flour Weighing Machines are designed and operated in a manner to assure accurate weights. On our large machines three filling hoppers are used. About seven-eighths of the desired quantity of material measured and placed in the bag at the first hopper. At the second and third hoppers a fine stream of material is dribbled into the bag; this stream is automatically shut off when exact weight of material is deposited.

SPECIFICATIONS

RANGE—12 to 49 lbs.

EQUIPMENT—Equipped to handle 12-24 and 49 lb. bags. Equipment for additional sizes extra.

BAGS—Cloth or paper.

SPEED—
12 bags per minute on 12 lb. size.
10 to 12 bags per minute on 24 lb. size.
6 to 8 bags per minute on 49 lb. size.

ACCURACY—
Within 1/4 oz. plus or minus weight specified on 12 lb. size.
Within 1/2 oz. plus or minus weight specified on 24 lb. size.
Within 1 oz. plus or minus weight specified on 49 lb. size.

FLOOR SPACE—5'10" x 11'5" x 10'4 1/2" high.

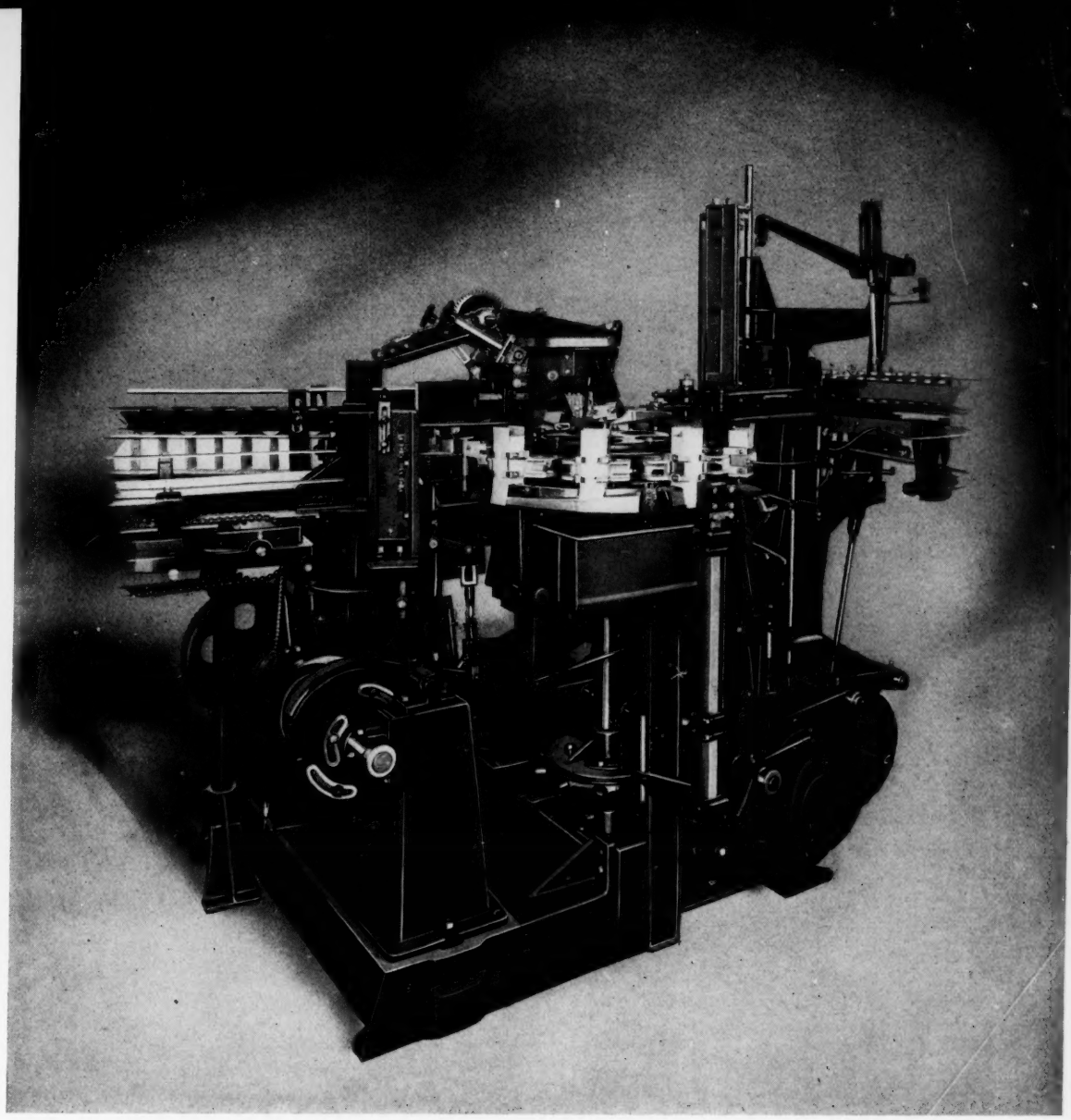
OPERATOR—One operator required.

WEIGHT—Domestic Shipping 7100 lbs.

HORSEPOWER—15 H.P. required. Countershaft Drive only.

ADJUSTABILITY—Requires about 15 minutes to change from one size bag to another.

XUM



COMBINATION CARTON FILLING AND SEALING MACHINE

Class No. 3711

All the operations of feeding, sealing and filling the cartons are combined in this one machine.

An ideal machine for use where floor space is limited.

Material is measured and a remarkable degree of accuracy maintained especially where material packed is of uniform volume.

SPECIFICATIONS

RANGE—Will handle cartons of the following sizes: Minimum—7/8" x 1 3/4" x 2 1/4". Maximum—2 1/4" x 4" x 7".

EQUIPMENT—Equipped for one size package only.

SPEED—60 packages per minute.

ACCURACY—Measuring Device used for Filling. Accuracy dependent upon the uniform consistency of the material.

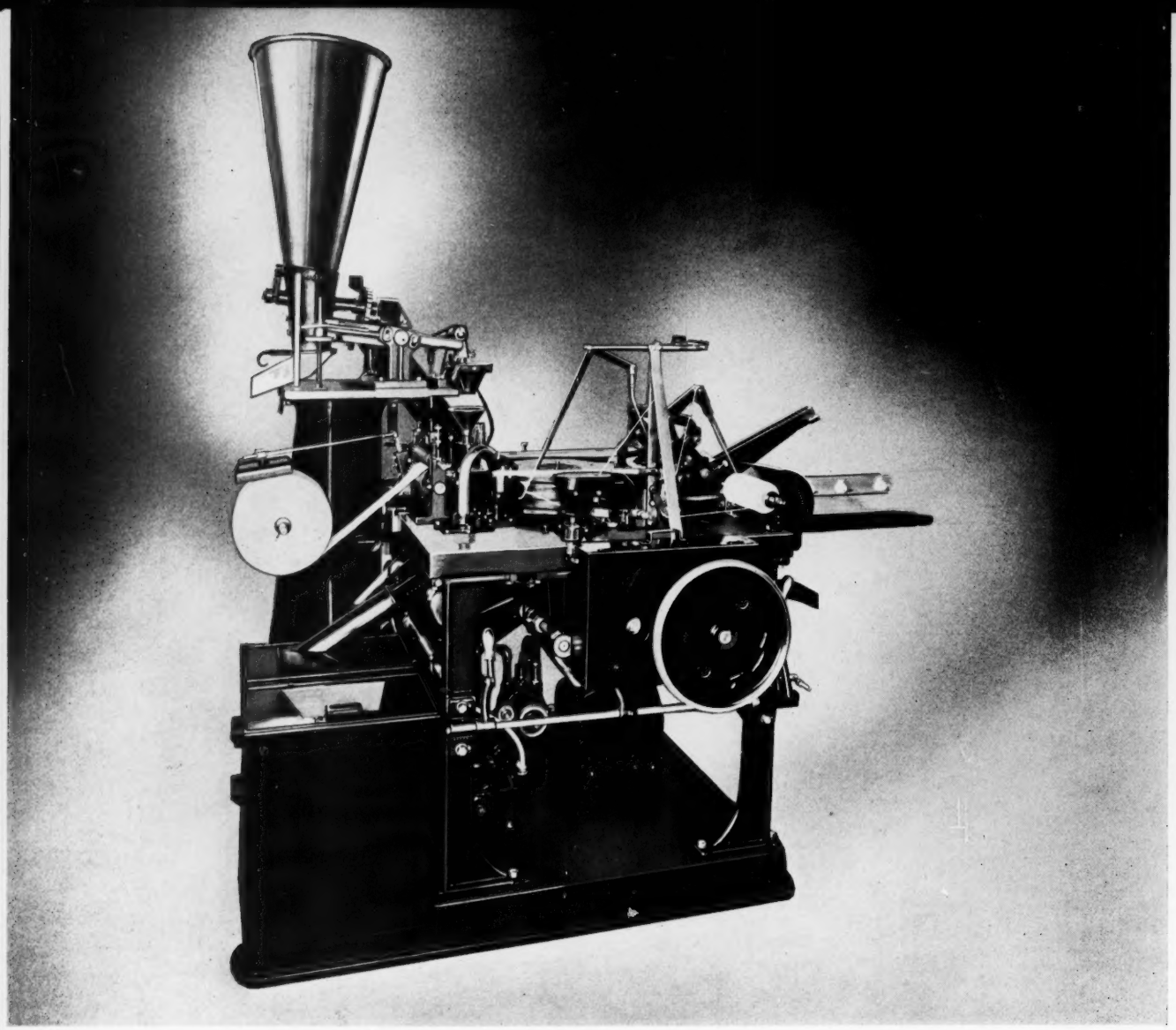
FLOOR SPACE—8'3" x 11'7" x 7'10" high (Carton Feeder & Dryer included)

OPERATOR—One operator required for packing.

WEIGHT—Domestic Shipping—4000 lbs.

HORSEPOWER—1/2 or 3/4 HP motor depending on the nature of the goods. Price of machine includes motor.

ADJUSTABILITY—Machine not readily adjustable. Recommended for one size only.



PNEUMATIC AUTOMATIC TEA BALL MACHINE

Class No. 9121

The many advantages of the Pneumatic type of tea ball have been recognized by America's best known tea merchants in their choice of the Pneumatic Automatic Tea Ball Machine. Thomas J. Lipton, Inc., Joseph Tetley & Co., Inc., Chase & Sanborn, Wm. S. Scull Co., and many others use batteries of Pneumatic machines to produce their internationally known brands of quality tea balls.

All the various operations — cutting the pure web-like gauze from a self-feeding roll, accurately weighing the tea into the gauze, forming and tying the bag and attaching the tag — are fully automatic and effected with a pleasing surety and smoothness. Most grades of tea, coarse or fine, are accurately and efficiently handled.

SPECIFICATIONS

RANGE—
Minimum—Gauze 4½" square to pack 200 tea balls per lb. of tea.
Maximum—Gauze 7" square to pack 75 tea balls per lb. of tea.
Minimum—Tags ¾" x 1"
Maximum—Tags 1⅛" x 1¼"

EQUIPMENT—Machine adjustable within the above limits without additional equipment. Tag of different shape may require new chute.

SPEED—30 to 35 per minute.

ACCURACY—1/100 oz. plus or minus specified weight.

FLOOR SPACE—7'6" x 12'6" x 6'6" high (including machine hopper).

OPERATOR—One operator required to remove finished tea balls and pack in containers.

WEIGHT—Domestic Shipping—3400 lbs.

HORSE-POWER—1 HP motor required. Price of machine includes motor.

ADJUSTMENT—Requires about 15 minutes to change from one size bag to another. About 30 minutes required if different tag is used.

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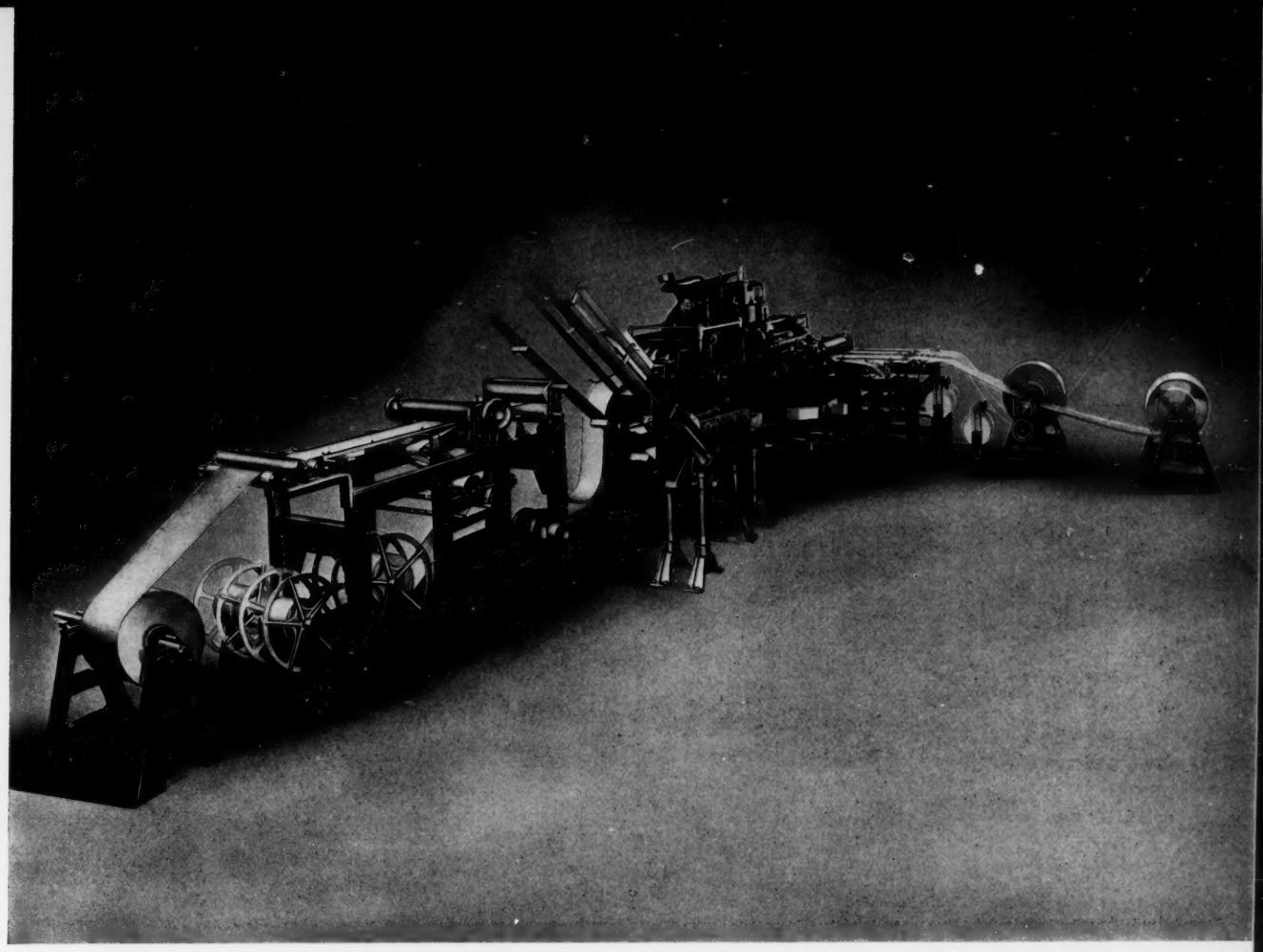

CLAFF AUTOMATIC DOUBLE END PROCESS BOX MAKING MACHINE

Class No. 9161

A complete box plant combined in one machine. All the usual semi-automatic intermediate operations eliminated. Takes board and paper in rolls and turns out finished boxes or tops. No rehandling and no defective pieces. All the operations of covering, creasing, blanking, etc., to turning out the finished box is a continuous automatic operation producing an unusually strong box with a definite saving in material, time and labor.

SPECIFICATIONS

RANGE—Will handle boxes of the following sizes:—
Minimum—¾" deep, 3" wide, 8" long.
Maximum—5" deep, 8" wide, 14" long.
(Length of box must be twice its depth plus 1")
Minimum and Maximum sizes cannot be handled on the same machine.

EQUIPMENT—Equipped for one size box. Equipment for additional sizes extra.

CARDBOARD—Fed from rolls (three required).

COVERING PAPER—Fed from rolls (three or four rolls required according to type of box).

SPEED—35 to 38 box bodies or lids per minute.

FLOOR SPACE—31'8" x 22'0".

OPERATOR—One operator and helper required.

WEIGHT—Domestic Shipping—18,000 lbs.

DRIVE—2 HP required. Machine can be equipped for either countershaft or individual motor drive.

ADJUSTABILITY—Requires about 60 minutes to change from one size box to another.

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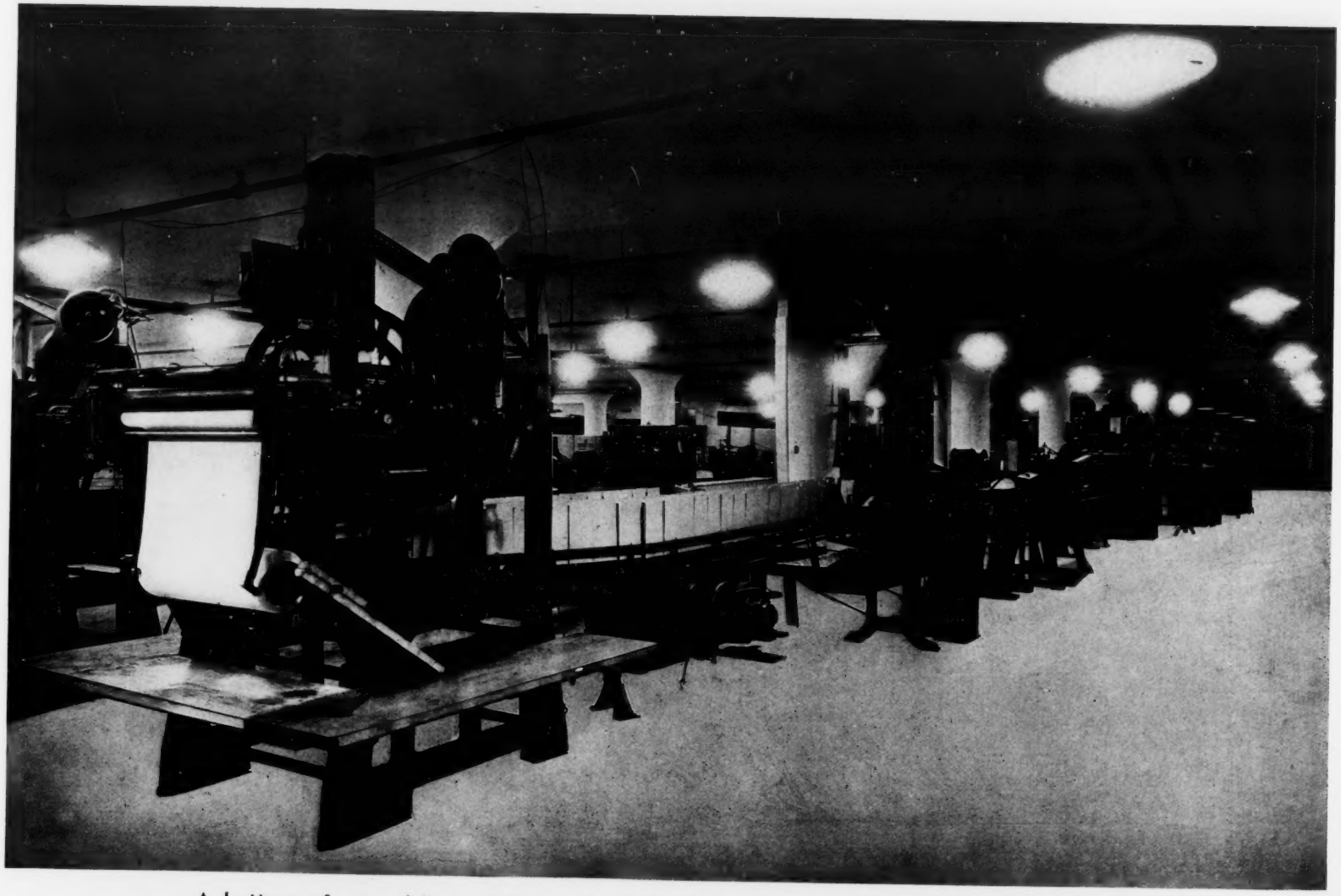
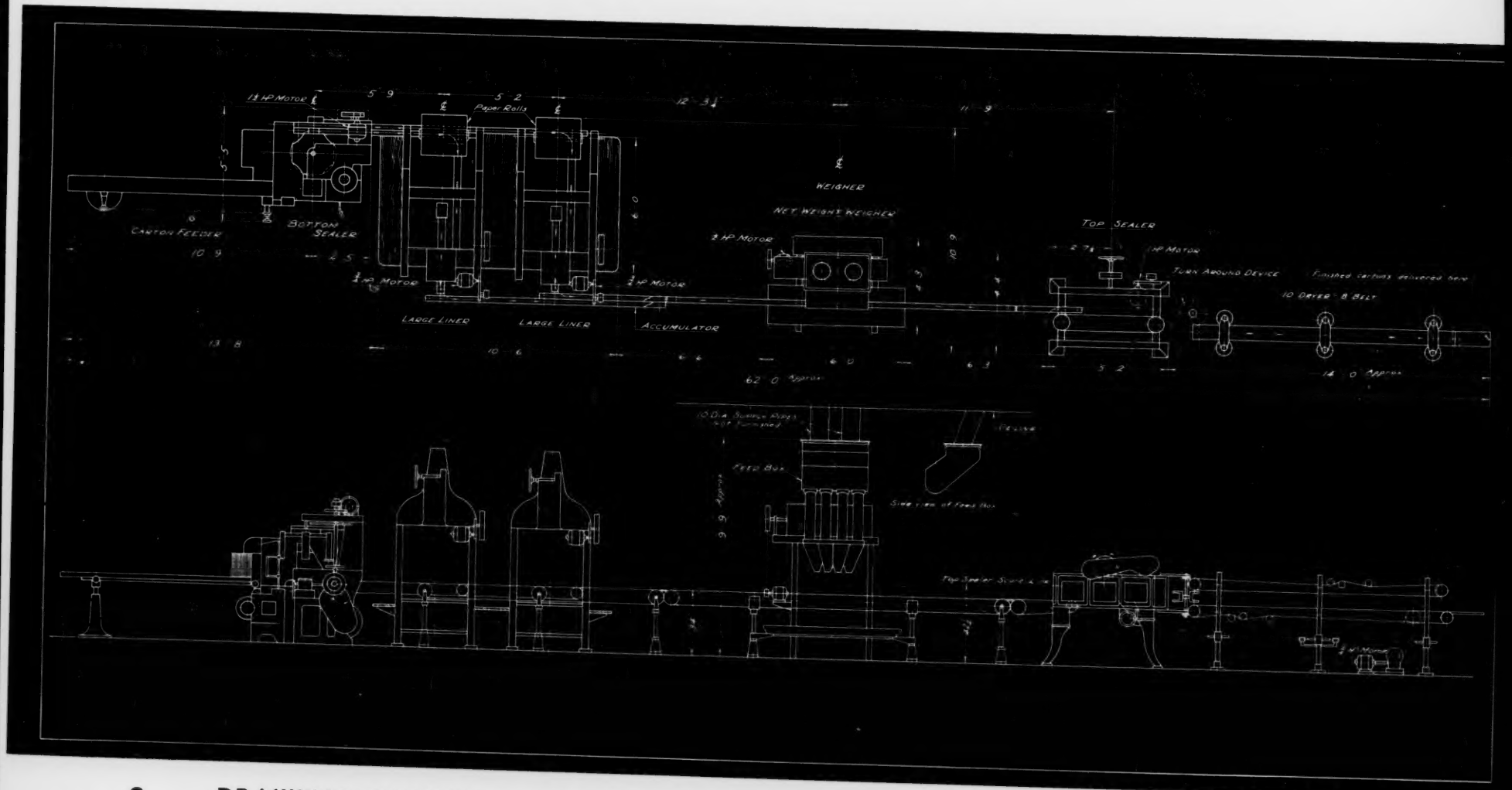


A battery of several lines of Pneumatic Scale Corporation machines, consisting of Automatic Carton Feeders, Bottom Sealers, Lining Machines, Weighing and Filling Machines, Top Sealing and Wrapping Machines, operating in the plant of the Jewel Tea Co., Barrington, Illinois.

XUM



DRAWING SHOWING TYPICAL FLOOR PLAN OF A PNEUMATIC PACKAGING UNIT

Seventy Different Types of Standard Packaging Machines

Below are listed some of the 70 different types of standard packaging machines manufactured by the Pneumatic Scale Corporation for every packaging purpose, dry or liquid:

For Cartons

Carton Feeders

Bottom Sealers

Lining Machines

Coupon Devices

Filling and Weighing Machines

Top Sealers

Dating Devices

Tight Wrappers

Dryers

For Cans, Tins, Jars, etc.

Weighers and Fillers

Fillers

Cappers

Wet Labelers

Drum Labelers

Wrappers (Dry)

Dryers

For Sacks and Bags

Fillers and Weighers

For Bottles, Cans and Other Containers

Vacuum Filling Machines

Bottle and Can Capping Machines

Corking Devices

Volumetric Powder Fillers

For Other Purposes

Claff Automatic Box Making Machine

Automatic Tea Ball Machines

Automatic Butter Cutting and Wrapping Machine

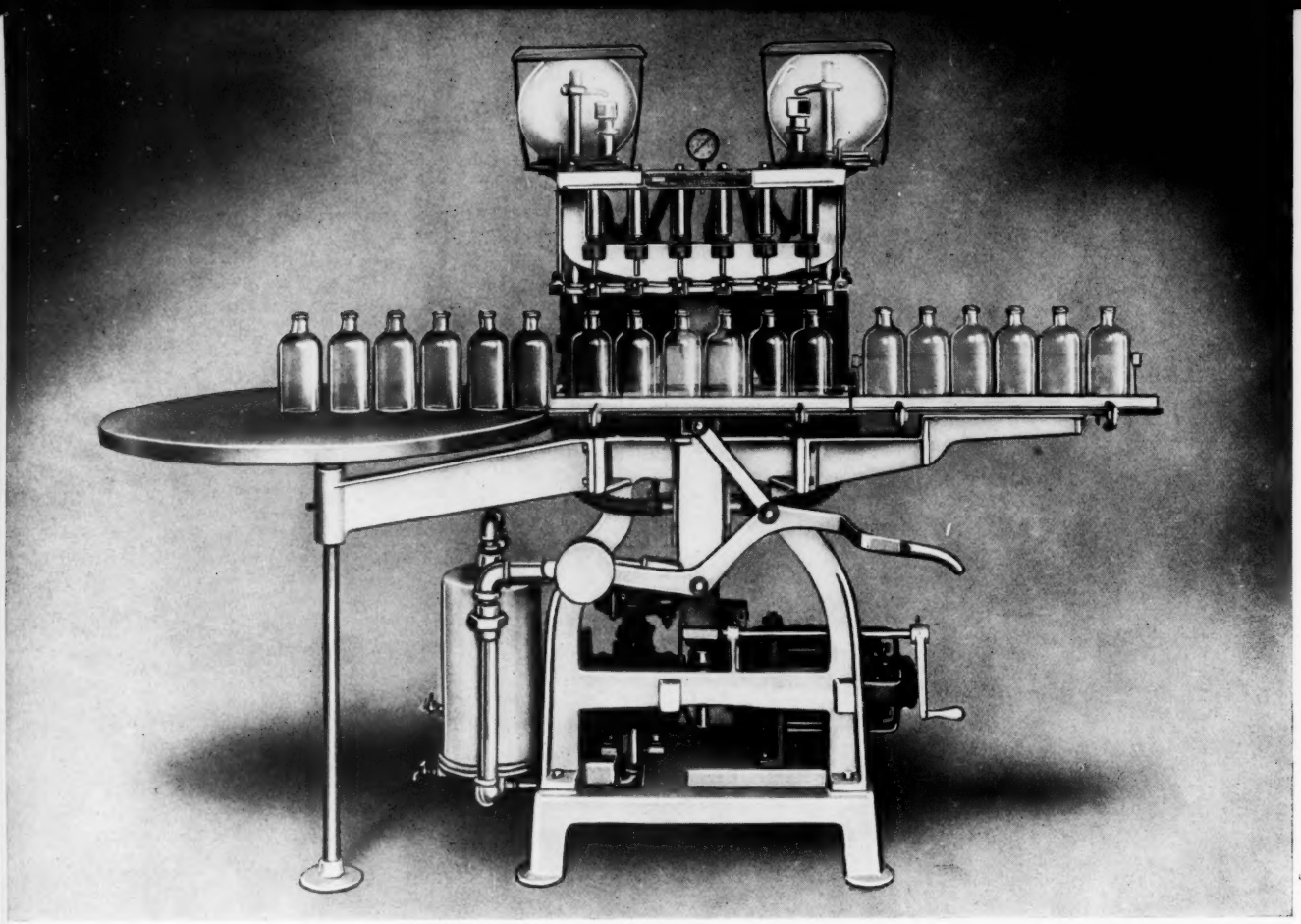
Automatic Coin Handling Machines

XUM

AUTOMATIC MACHINERY FOR LIQUID FILLING

VACUUM FILLING
CAPPING
CORKING

PNEUMATIC SCALE CORPORATION, LTD.
NORFOLK DOWNS · (QUINCY) · MASS.



SAMCO JR. VACUUM FILLING MACHINE

Class No. 7113

A sturdy, rugged vacuum filling machine, particularly useful where a number of sizes of bottles and a wide variety of materials are handled. Changes from one size container to another are simple, requiring from 10 to 25 minutes time.

SPECIFICATIONS

RANGE—Will fill practically all types of bottles (regular or sprinkler top finish) and cans from 1 oz. to 1 gal. sizes.

EQUIPMENT—Price includes equipment for one size container. Equipment for additional sizes extra.

SPEED—Rated at 30 filled containers per minute.

ACCURACY—Will fill every container to the same predetermined level.

ADJUSTABILITY—Machine is flexible and adjustable to different sizes within reasonable range. Changes from one size to another require from 10 to 25 minutes time.

FLOOR SPACE—3' x 5' x 6' high.

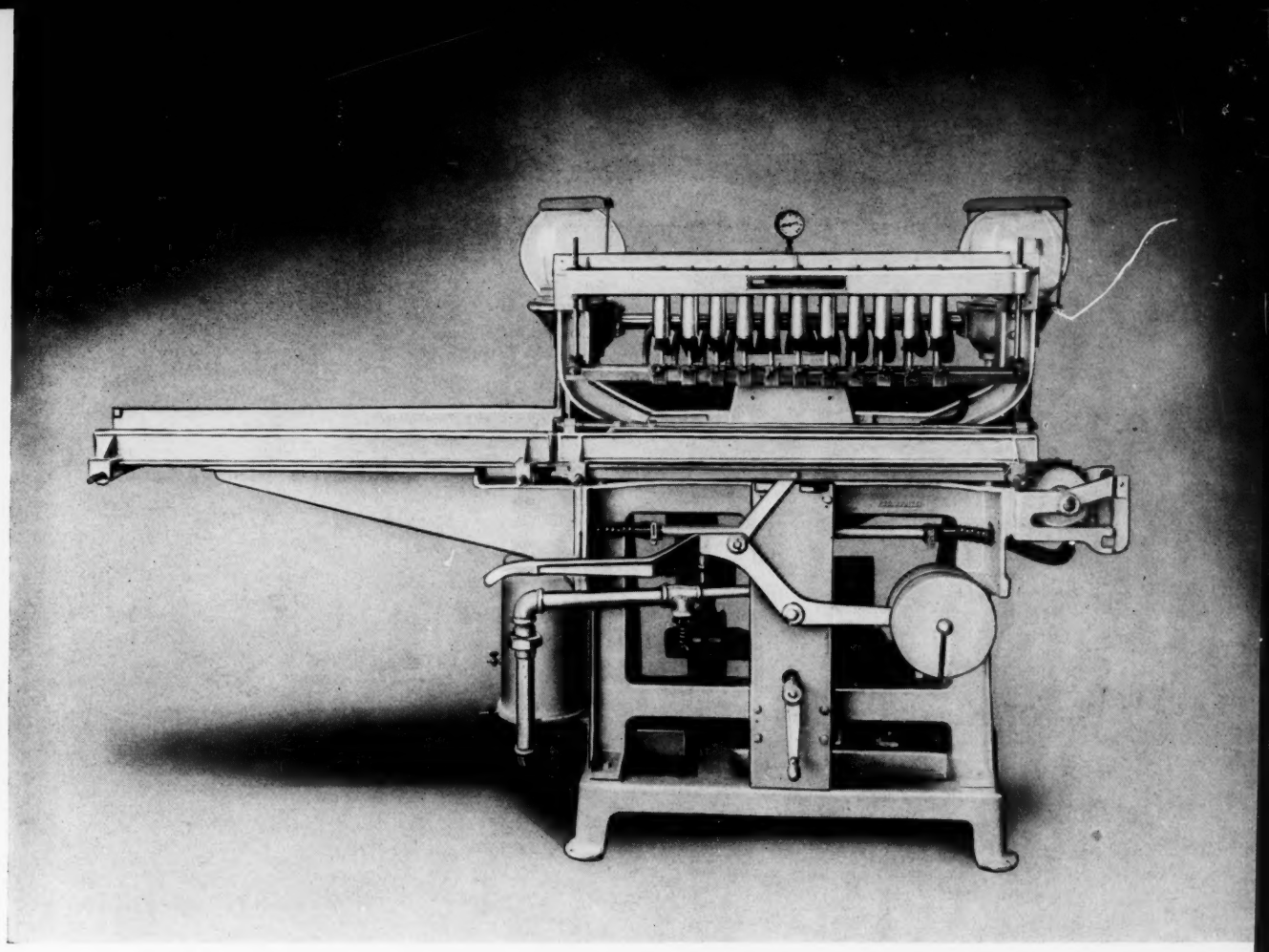
WEIGHT—Domestic Shipping—1200 lbs.

MOTOR DRIVE—1 HP motor for Vacuum Pump drive furnished.

OPERATOR—Machine is semi-automatic, one operator required to feed empty containers and remove filled containers.

ROTARY TABLE—For collecting the filled containers; can be furnished as extra equipment at additional cost.

XUM



ENLARGED SAMCO VACUUM FILLING MACHINE

Class No. 7122

While this machine was specially designed to fill eleven quarts or six gallon jugs at a time and give the generally desired speed on these sizes, this same machine will fill smaller containers with equal facility, and at proportionately greater speed.

It can be used for small and medium size bottles or cans in the general run, then be shifted to runs on the larger sizes with no more trouble than comes with the ordinary machine changes from size to size.

The filling parts are made of a material to withstand the corrosive action of the products to be filled. . . . For filling vinegar, ketchup, and pharmaceutical products.

SPECIFICATIONS

RANGE—Will fill practically all types of bottles (regular or sprinkler top finish) and cans from 1 oz. to 1 gal. sizes.

EQUIPMENT—Price includes equipment for one size container. Equipment for additional sizes extra.

SPEED—Rated at 40 to 50 filled containers per minute, according to size of container and character of material to be filled.

ACCURACY—Will fill every container to the same predetermined level.

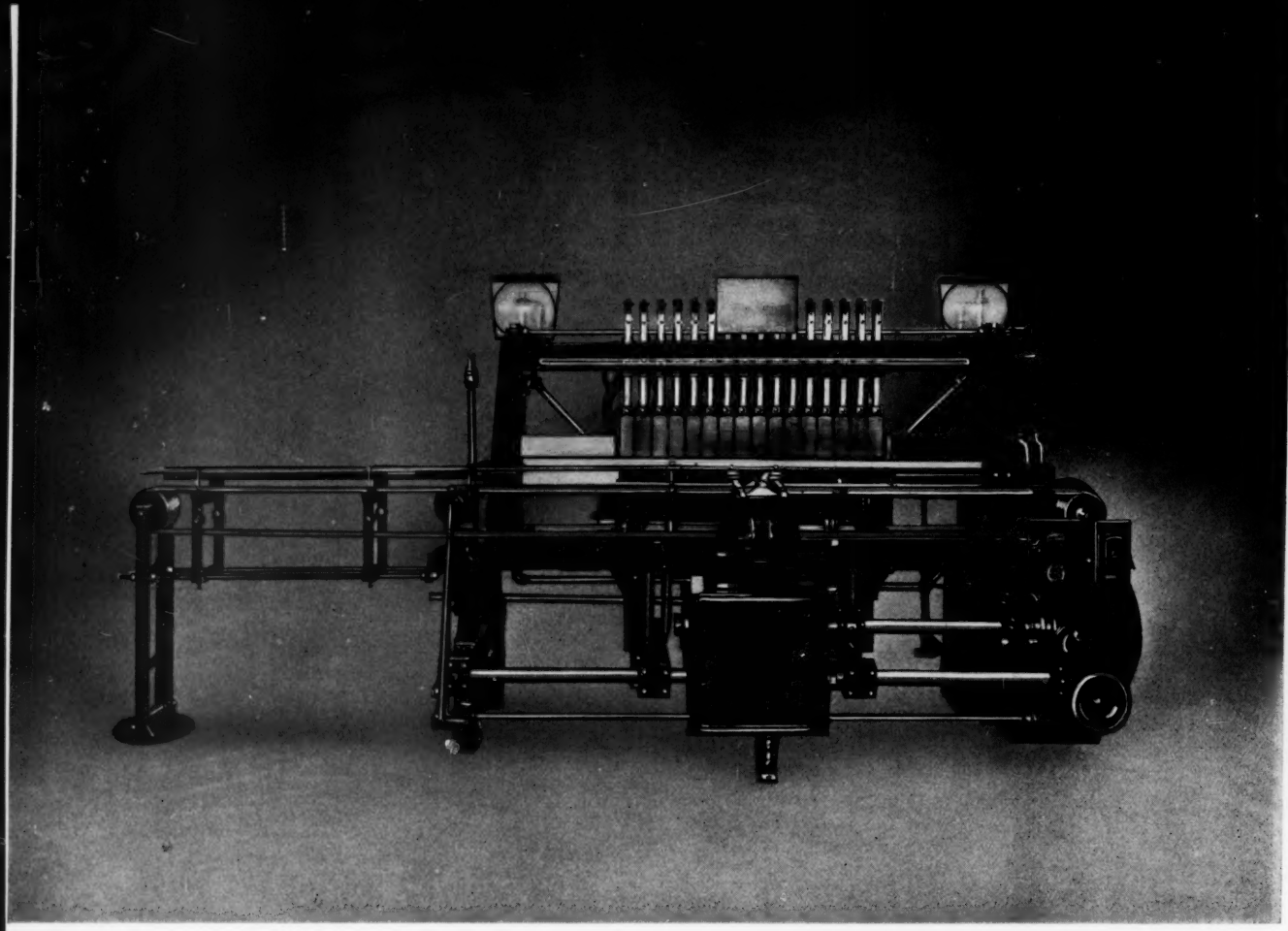
ADJUSTABILITY—Machine is flexible and adjustable to different sizes within reasonable range. Changes from one size to another require from 20 to 40 minutes.

FLOOR SPACE—3' x 7' x 6' high.

WEIGHT—Domestic shipping—1900 lbs.

MOTOR DRIVE—One HP motor required to drive Vacuum Pump. This motor furnished with machine.

OPERATOR—Machine is semi-automatic, one operator required to feed empty containers and remove filled containers.



FULLY AUTOMATIC VACUUM FILLING MACHINE

Class No. 7124

Where steady, long runs and positive, dependable production schedules must be maintained, our Fully Automatic Vacuum Filling Machine is recommended.

SPECIFICATIONS

RANGE—Will fill practically all types of bottles (regular and sprinkler top finish) and cans from 1 oz. to 1 qt. sizes.

EQUIPMENT—Price includes equipment for one size container. Equipment for additional sizes extra.

SPEED—50 to 100 per minute, depending on—
1. Container and product to be filled.
2. Number of filling heads which vary from 12 to 20.

ACCURACY—Will fill every container to the same predetermined level.

ADJUSTABILITY—Machine is flexible and adjustable to different sizes within reasonable range. Changes from one size to another require from 30 to 45 minutes.

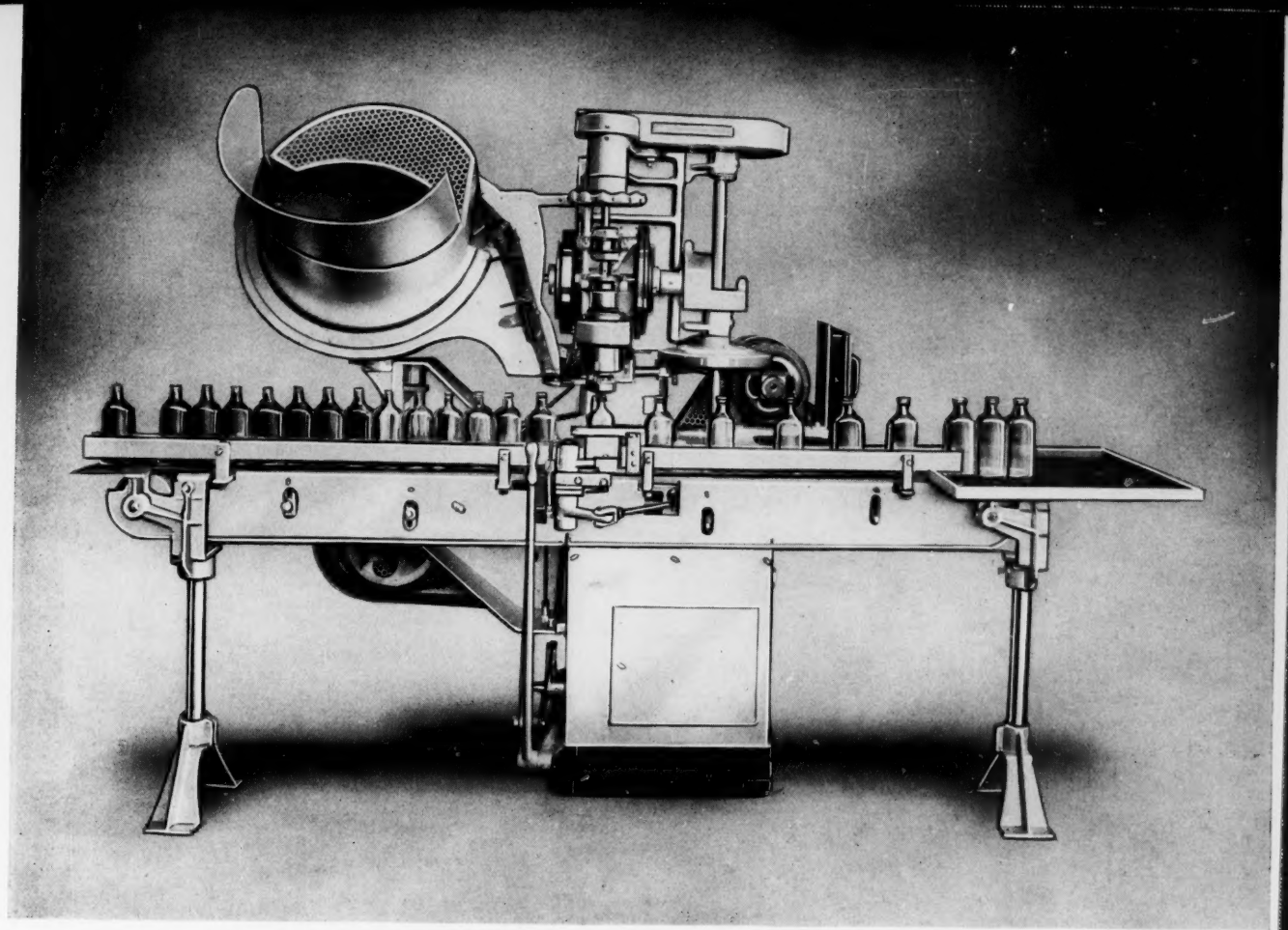
FLOOR SPACE—4' x 12' x 6' high.

WEIGHT—Domestic Shipping—4100 lbs.

MOTOR DRIVE—½ HP motor required for machine drive. 1½ HP motor required to drive Vacuum Pump. These motors are furnished with machine.

OPERATOR—Machine is fully automatic, one operator required to feed bottles.

XUM



SINGLE HEAD AUTOMATIC SCREW CAPPING MACHINE WITH AUTOMATIC CAP FEED

Class No. 3321

Our Single Head Screw Capper is of the same fine construction as our Six Head Machine and equipped with the same super-sensitive type capping head.

The Automatic Cap Feeds, shown with the Single and Six Head Cappers contain an easily accessible hopper into which the caps can be dumped in quantities. It is impossible to jam the feed hoppers. They are easily and quickly adjustable; all working parts are accessible and within easy reach from the floor.

Standard Vacuum Filling Units can be operated with either of these Capping Machines accomplishing the filling, cap feeding and cap turning in a continuous process without employing a single hand operation.

SPECIFICATIONS

RANGE—Will handle any type of turn-on closure and a variety of sizes and shapes of containers.

EQUIPMENT—Price includes equipment for one size container. Equipment for additional sizes extra.

SPEED—Rated at 40 per minute.

ADJUSTABILITY—Machine is flexible and adjustable to different sizes within reasonable range. Changes from one size to another require from 10 to 30 minutes.

FLOOR SPACE—(Including Automatic Cap Feed)—3½′ x 8½′ x 6½′ high.

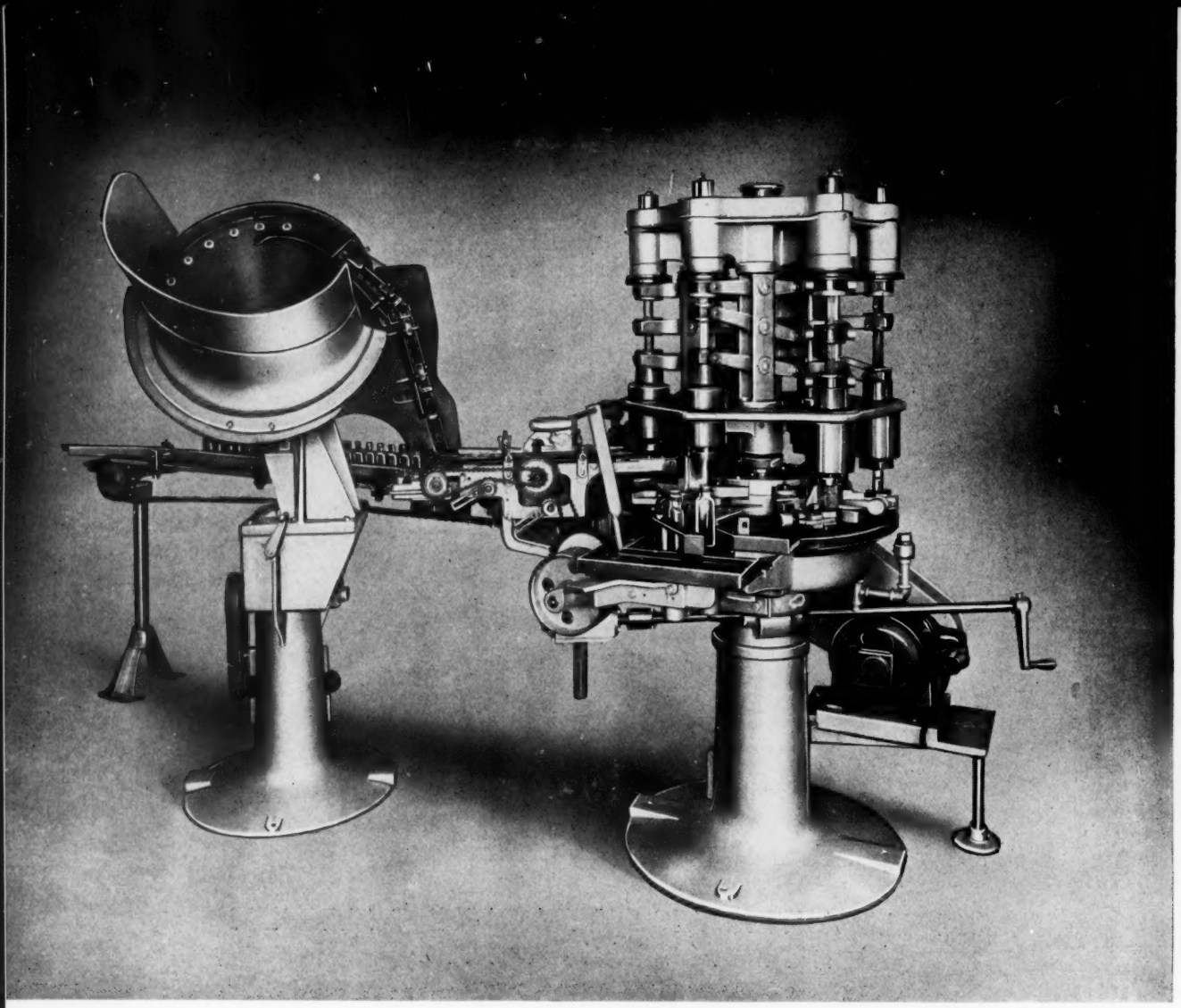
CONVEYORS—3′9″ intake—3′3″ delivery.

WEIGHT—Domestic Shipping—3200 lbs.

MOTOR DRIVE—¾ HP motor required. Price of machine includes motor.

OPERATOR—Capping Machine is fully automatic in operation. Attendant only required to occasionally refill the cap feed hopper.

SPECIAL EQUIPMENT—Can be furnished for applying slip-on covers to certain types of cans.



SIX-HEAD AUTOMATIC ROTARY SCREW CAPPING MACHINE WITH AUTOMATIC CAP FEED

Class No. 3314

The new supersensitive capping head on this machine turns on the caps to an exact predetermined tension. This uniform tension is attained regardless of the natural variations in the container finish.

Adjustment of the head is simple. Beginning with a loosely turned on cap, the tension can be gradually increased until the exact desired tension is obtained.

With this improved machine a perfect seal is assured on all containers, but not so tightly capped that they cannot be loosened only by the strong-of-hand.

SPECIFICATIONS

RANGE—Will handle any type of turn-on closure and a variety of sizes and shapes of containers.

EQUIPMENT—Price includes equipment for one size container. Equipment for additional sizes extra.

SPEED—Rated at from 50 to 100 per minute.

ADJUSTABILITY—Machines are flexible and easily adjustable to different sizes of caps and containers. Changes from one size to another require from 15 to 45 minutes.

FLOOR SPACE—(Including Automatic Cap Feed) 5' x 10' x 6½' high.

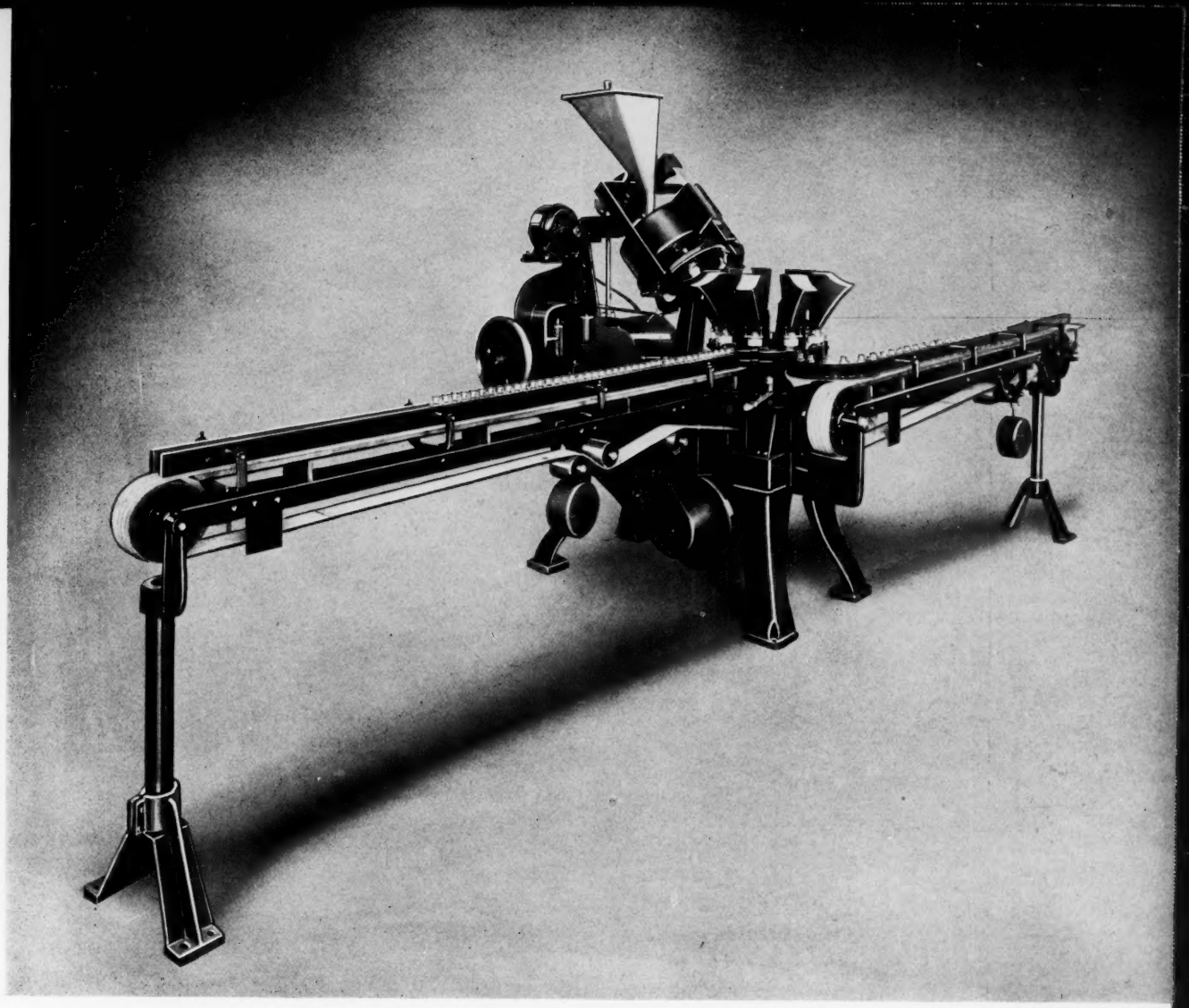
CONVEYORS—6'0" intake—no discharge.

WEIGHT—Domestic Shipping—4500 lbs.

MOTOR DRIVE—1 HP 1200 RPM Motor furnished for Capper. ½ HP 1140 RPM Motor furnished for Cap Feed. Automatic Cap Feed is mounted on a separate base and independent of the Capping Machine for driving power.

OPERATOR—Machines are fully automatic. Attendant will occasionally refill cap feed hopper.

XUM



VOLUMETRIC FILLING MACHINE
For Granular Material
Class No. 7121

This machine adaptable for filling an accurate volume of free flowing granular or crystalline material, such as crystallized salts, etc., into round or rectangular bottles, cans and other containers constructed with sufficiently large openings. Particularly recommended for smaller sizes ranging from 1 to 5 oz. where accurate weights are not essential but high speed production is an important factor.

SPECIFICATIONS

RANGE—Best suited for filling bottles and cans holding from one to five oz. of material.

EQUIPMENT—Price includes equipment to handle one size container. Equipment for additional sizes extra.

SPEED—40 to 100 filled containers per minute, depending on

1. Nature of material to be filled.
2. Style, shape and size of containers.

ACCURACY—Will fill an accurately measured volume of material into each container. Weights depend on uniformity of material.

ADJUSTABILITY—This is essentially a one size machine although several sizes can be handled on the same machine under certain favorable conditions.

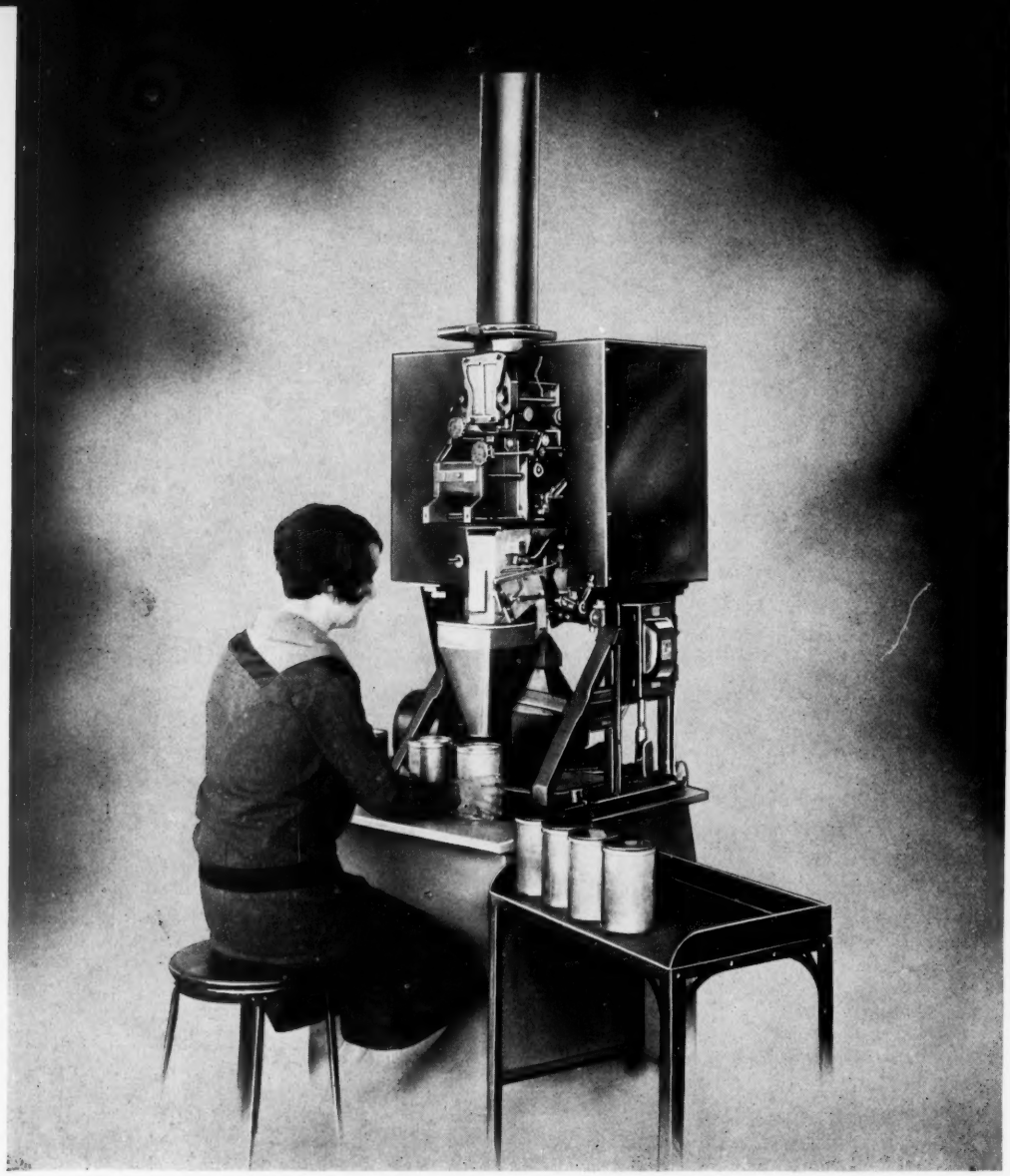
FLOOR SPACE—13' x 5'.

WEIGHT—Domestic Shipping—1900 lbs.

OPERATOR—No operator required.

SPECIAL EQUIPMENT—When materials are affected by absorbing moisture from the air and air conditioning is necessary, we can supply heated and insulated machine casing, if required.

XUM



SEMI-AUTOMATIC NET WEIGHT WEIGHER

Class No. 2312

The Pneumatic Semi-Automatic Net Weight Weigher was developed to meet the demand for a small inexpensive, yet thoroly accurate and reliable weighing machine.

Built to withstand hard usage, the same proved and accurate principles used in our higher priced, high speed machines, are utilized in this smaller unit.

To those packers with comparatively small production, who demand positive operation and accuracy in weights, this weighing machine is recommended.

Semi-Automatic carton sealing machines to be operated with this semi-automatic Weigher are included in our line of standard equipment. Details furnished on application.

SPECIFICATIONS

RANGE—Will handle round and rectangular containers of the following sizes:

Round

Minimum—1½" Dia. x 2½" high. Maximum—6¾" Dia. x 13-15/16" high.

Rectangular

Minimum—1" x 2" x 2½" high. Maximum—4" x 7" x 13-15/16" high (from bottom score line to top flap).

Maximum Capacity of either round or rectangular cartons not exceed 200 cubic inches.

EQUIPMENT—Equipped for one size. Equipment for additional sizes extra.

SPEED—15 per minute.

ACCURACY—1/16 oz. plus or minus weight specified.

FLOOR SPACE—2'3" x 3'1" x 8'7" high including table (not furnished).

OPERATOR—One operator required.

WEIGHT—Domestic Shipping—750 lbs.

HORSEPOWER—¼ HP motor required. Price of machine includes motor.

ADJUSTABILITY—About 30 minutes required to change from one size to another.

XUM

Introducing
CONSTELLATION EMBOSSING
NASHUA MICA PAPERS
The Battle of the Boxes
WITH no drama of military combat, a war is being fought for business . . . for product preference. In this contest . . . package appearance is a tremendous factor.
The box covering is the foundation of package appeal. Nashua Embossed Mica papers attract the eye, convey the impression of quality and contribute to merchandising success.
The selection of the right box covering is of vital importance in present day marketing.
NASHUA GUMMED & COATED PAPER CO. NASHUA, N. H.
The creations attached are all embossed in Constellation and are shown in color
Lavender No. 1143
Grey No. 1144
Tan No. 1145
Pink No. 1146
Blue No. 1148
Printed specimen—Green No. 1141

What you want in box covering, Nashua has.

When you don't know just what you want Nashua is ready to suggest.

Now, as ever, Nashua offers box coverings of right quality at right prices, and intelligent service without price.

Headquarters for attractive
box coverings

Nashua Gummed & Coated Paper Company
Nashua, N. H.

XUM

XUM

F. J. STOKES MACHINE COMPANY

COLLAPSIBLE-TUBE, JAR AND POWDER FILLING EQUIPMENT

5990 Tabor Road, Olney P. O.
PHILADELPHIA, PA.

New York Office—
103 Park Avenue

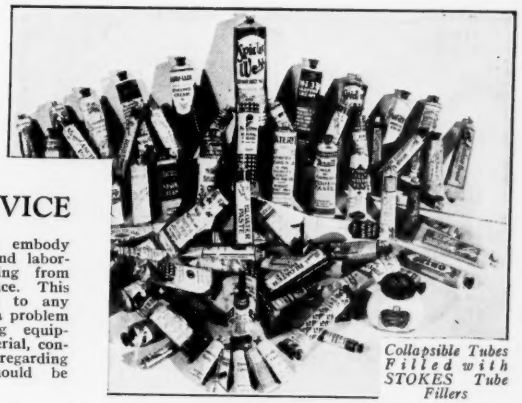
Los Angeles Office—
1231 E. 7th Street

Chicago Office—
307 N. Michigan Avenue

Containers Filled with STOKES Powder Filling Equipment

STOKES SERVICE

Our stock machines embody many patented time and labor-saving features resulting from over 36 years' experience. This experience is available to any manufacturer who has a problem requiring special filling equipment. Samples of material, containers and information regarding production desired should be furnished.



Collapsible Tubes Filled with STOKES Tube Fillers

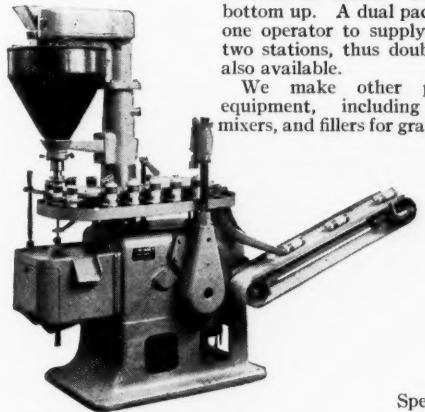
POWDER FILLING EQUIPMENT

Powder Filler 15A (Basic Model). Fills practically any powdered product into tins, boxes, bottles, cans and cartons of various shapes and sizes up to 7" in height. Capacity, 20 to 35 containers per minute. Accuracy and cleanliness insured by auger-type filling mechanism, slow-motion agitator and two-step fill. Compactness and simplicity of design save floor space and time in operation. Easily cleaned and quickly "changed over"; especially suited to the manufacturer with a varied line. As production grows, this machine does not need to be discarded but can be expanded to a full automatic machine by the addition of certain attachments (see below).

Powder Filler and Capper, 15A (Full Automatic Model). By adding attachments to the 15A basic model, the production machine illustrated is developed. From 20 to 45 (sometimes 50) containers per minute can be accurately and cleanly filled, firmly capped and automatically discharged. Shear pin safety device prevents damage if containers jam, etc. Two operators required if container is to be capped; otherwise one. Attachments, added as needed, include overhead hopper attachment for two-story operation, circular container carrier, "no-can-no-fill" control, capper and automatic container discharge. Other attachments which are available include: conveyor for finished packages, attachment for filling granular or free-flowing products and dust collector.

Packing and Weighing Machine. This is the 15A Machine (basic model) with a sensitive scale mechanism added. Packs from the bottom up. A dual packer, permitting one operator to supply containers to two stations, thus doubling output, is also available.

We make other powder filling equipment, including sifters and mixers, and fillers for granular products.



STOKES Automatic Powder Filler and Capper, No. 15A

TUBE FILLING EQUIPMENT

We make a full line of hand- and power-operated tube fillers, closers and clippers. (See below).

The machine illustrated is our Automatic Tube Filling, Closing, Clip-making and Attaching Machine No. 90C. It is a versatile production machine suited for many different products and different-sized tubes or for large production on one product.

It fills practically any liquid, semi-liquid or paste; handles tubes as small as ⅜" and up to 1½" by 7". Capacity, 140 gross per 8-hour day. Accurate, clean, easily adjusted and quickly "changed over." Requires only one attendant, whose wages are usually more than saved by one feature alone. Has many other unique features: makes its own clips from roll of commercial metal ribbon; thumb screw adjustment for fill; batch stamping device; "no-tube-no-fill" control. Sturdy construction and fine adjustments enable this machine to handle materials no other automatic machine will fill satisfactorily and to maintain minute weight tolerances.

Tube Filler, No. 2C. Handles any material from a liquid to a heavy paste by using suitable nozzles and hoppers. Capacity, 30 to 40 tubes per minute. Fills tubes up to 2" in diameter. Piston-type filling mechanism. Foot pedal control.

Tube Filler and Closer, No. 80A.—for semi-liquids.

Tube Closing and Clipping Machine, No. 79—for semi-liquids. These two machines in combination fill, close and clip tubes at the rate of 30 per minute. Two operators required.

Hand-Operated Tube Filler, No. 47; Hand-Operated Tube Closer, No. 49; Foot-Power Clipper, No. 48. For the small manufacturer. Capacity, 10 to 25 gross per day.

Special Filling Machines. We make jar and can filling machines and special machines for any special filling problem. Our advice and experience are available without obligation.

STOKES Automatic Tube Filling Closing, Clip-making and Attaching Machine, No. 90C

PRODUCTS

Tube Fillers, Closers and Clippers

Powder Fillers and Cappers

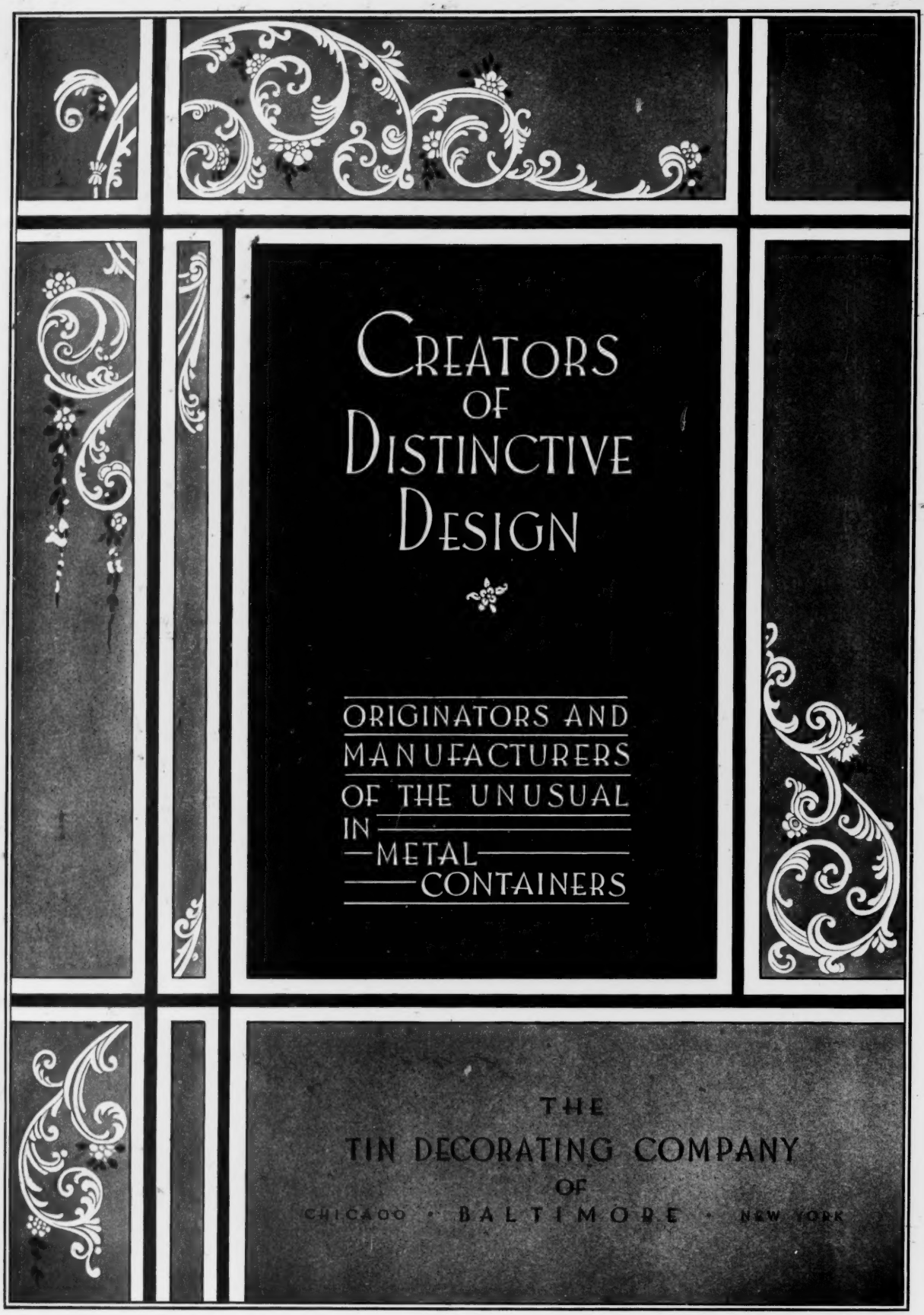
Tablet and Pill Making, Counting and Bottling Machines

Jar and Can Fillers—Mixers

Conveyors—Bottle Washers

Special Filling Machines

Special booklets describing our tube and powder fillers are available on request.


CREATORS
OF
DISTINCTIVE
DESIGN
ORIGINATORS AND
MANUFACTURERS
OF THE UNUSUAL
IN
METAL
CONTAINERS
THE
TIN DECORATING COMPANY
OF
CHICAGO · BALTIMORE · NEW YORK

Fancy Papers

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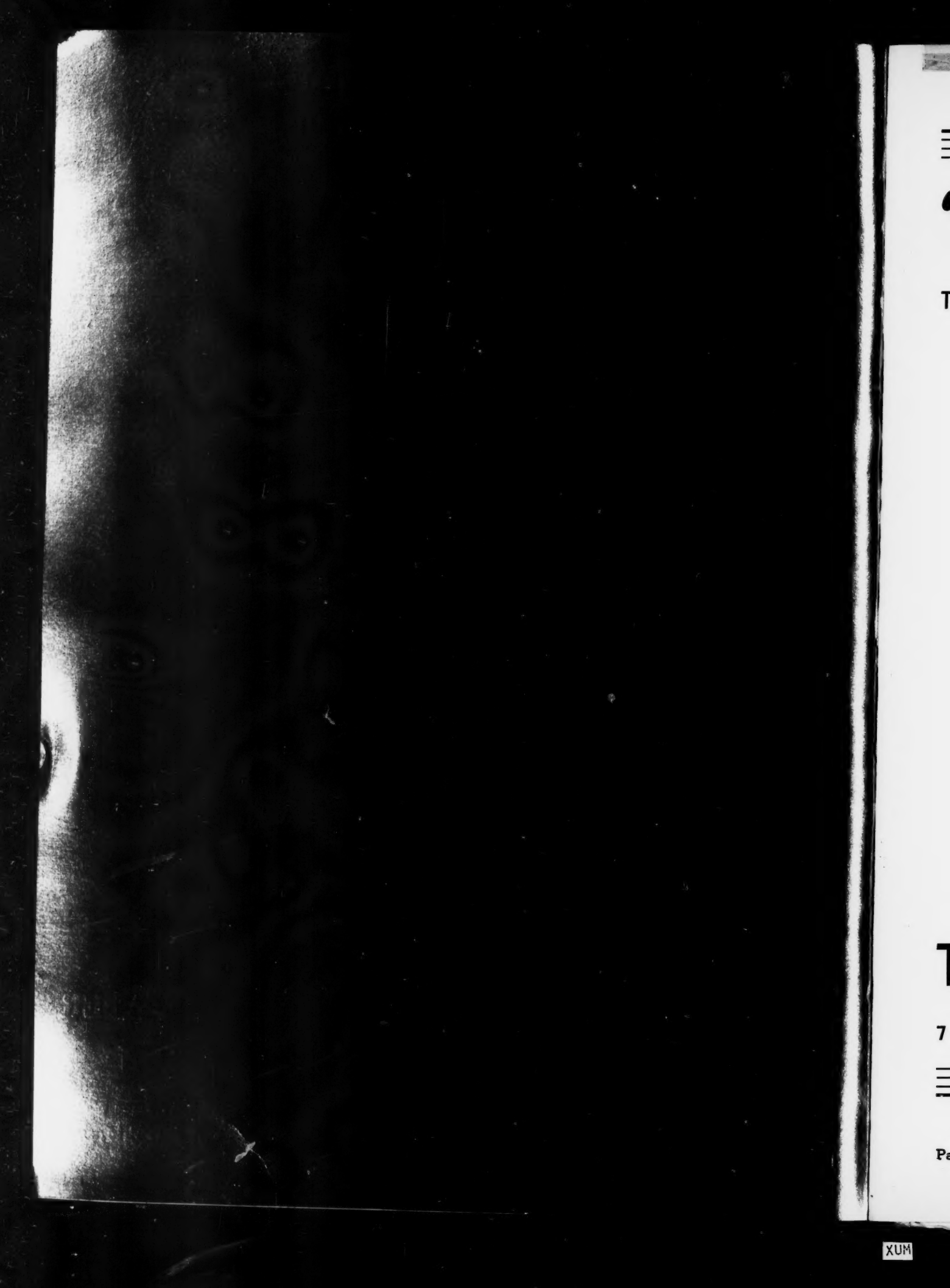
[illegible] PAPER
[illegible] CORPORATION
[illegible] N. Fifth Street,
Philadelphia, Pa.

XUM



TRANSCELLO

(TRADE MARK REG. U. S. PAT. OFFICE)

THE • ECONOMICAL • TRANSPARENT • PAPER

Highly Transparent
Most Economical
Lustrous
Soft, Pliable, Strong

•

Sterile, Sanitary
Greaseproof
Waterproof
Moistureproof

SUPERIOR PRINTING QUALITIES

T R A N S C E L L O

Can be used to advantage wherever any or all of the above characteristics are desired.

Makes a beautiful, lustrous, transparent wrapper—a valuable merchandising aid.

Produces that value atmosphere and artistic touch so necessary and important to the individual package.

Is dustproof—moistureproof and airproof—keeps the goods fresh, clean and untouched until used by the consumer.

Is available in fifteen, twenty and twenty-five pound stock. The attached is a sample of twenty-pound Transcello.

Write For Prices

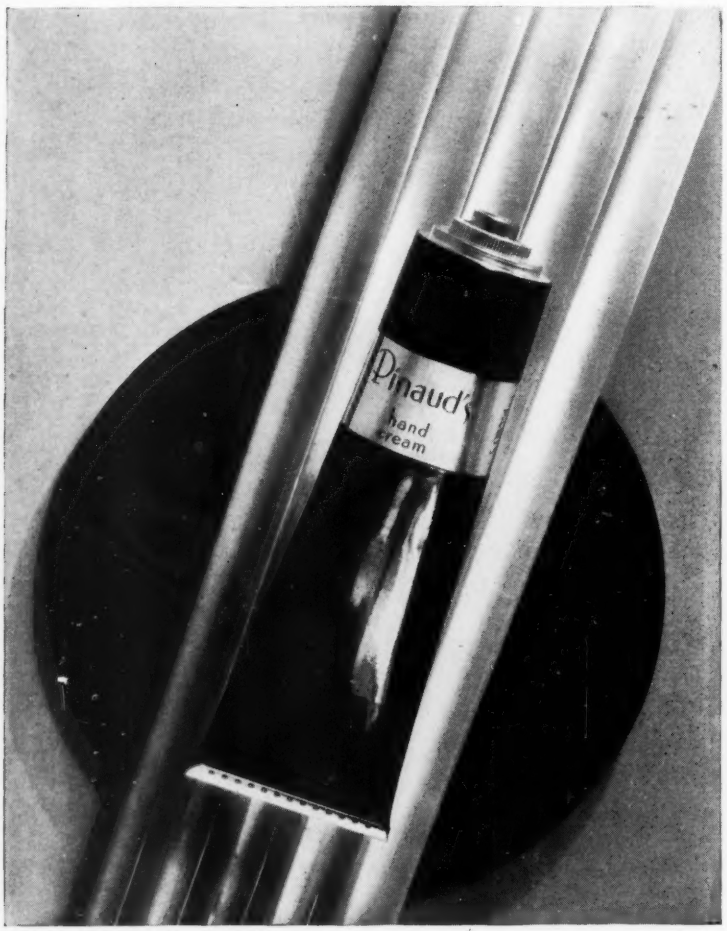
TRANSCELLO PAPER CO.

MANUFACTURERS OF TRANSPARENT PAPER

710 W. VIRGINIA ST. MILWAUKEE, WIS.

XUM

A Sun tube wins Medal for best Container Design of the year!



The medal-winning tube for Pinaud's Hand Cream; design by Alice McL. Jones; technical details and manufacture by Sun Tube Corporation.

★ ★ ★

WHERE an increase in sales has been the test, products packed in Sun Tubes have won shining triumphs. Now Sun Tubes share in a victory of another kind—*highest honor of the year for design!*

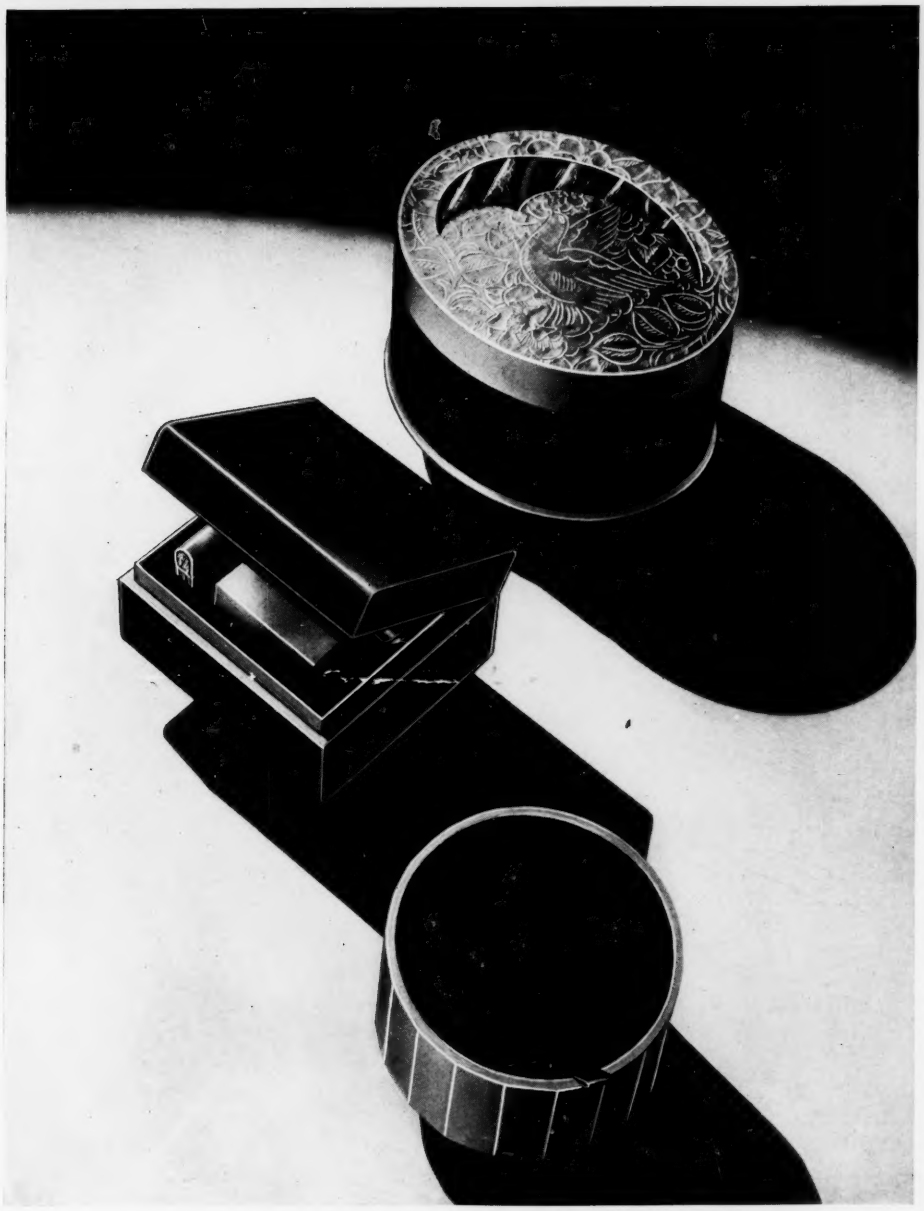
At the Tenth Annual Exhibition of Advertising Art, conducted by the Art Directors Club of New York—a tube designed for Pinaud's Hand Cream was pronounced the most artistic package put out during the past year.

Sun Tube worked out the technical details which made the design practicable, and devised new machinery necessary for its production. The tube was manufactured here at the Sun Tube factory.

Had there been a prize in the Exhibition for performance in the hands of users, we believe that Sun Tubes would likewise have come out on top. For Sun Tubes are manufactured to help products build sales by *looking* well and by *serving* well in the hands of customers.

Carefully supervised manufacture reduces to a minimum the chances of sales-losing troubles in Sun Tubes. Sun Tubes cost no more in the long run. We will be glad to cooperate in working out technical details connected with your tube problems.

SUN TUBE CORPORATION
Hillside, N. J.



EVERY box created by **VOSS** embodies new, original, distinctive packaging ideas—which are so necessary in these days of creative merchandising.

Consumers respond quickly to new ideas, and **VOSS** designers know how to incorporate them most effectively in producing new boxes.

KVC

KARL VOSS CORPORATION

HOBOKEN NEW JERSEY

XUM

A VOSS Box is the hall-mark of quality—it gives charm and character to the product and creates an unmistakable impression of quality and genuine worth.

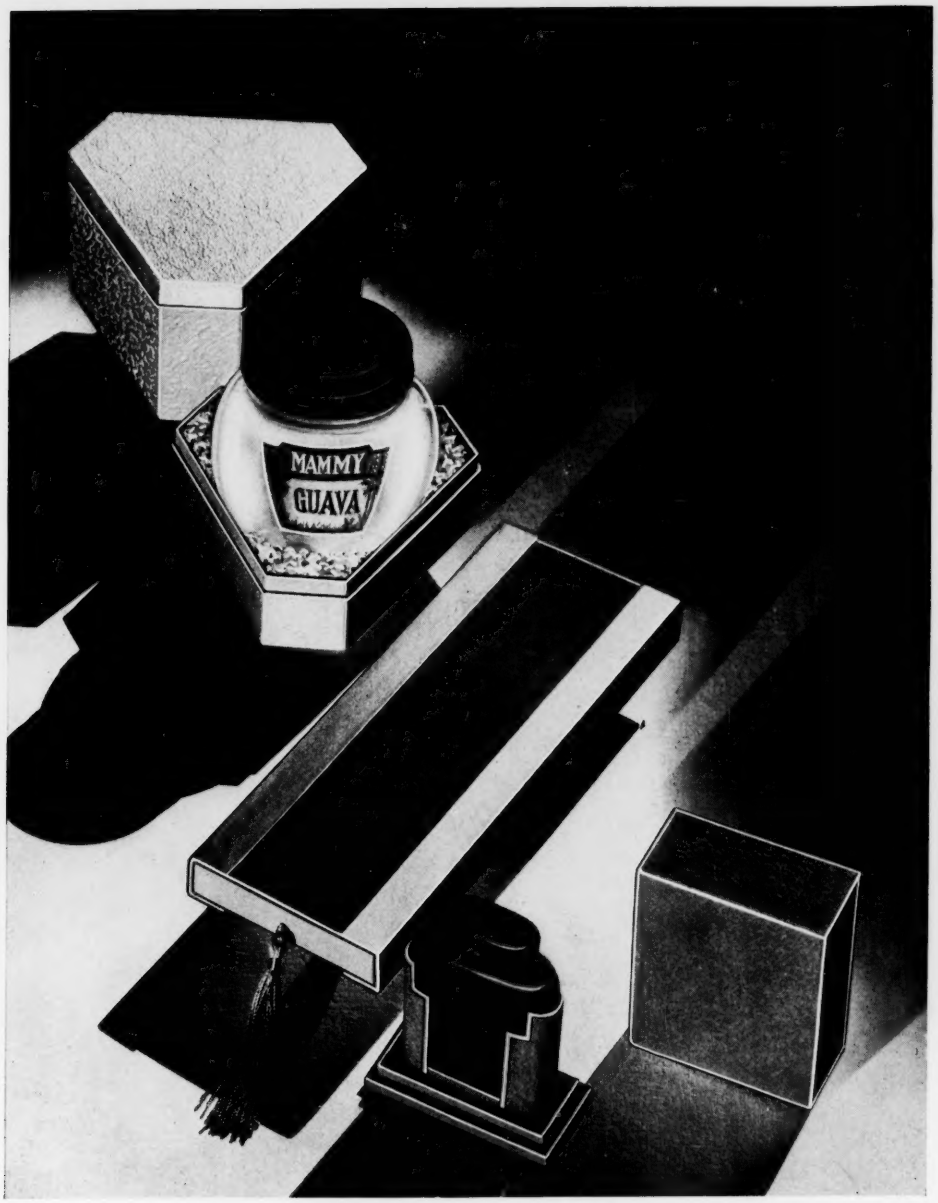
The tremendous influence that VOSS Boxes have on sales more than justifies their moderate cost.

May we show you how an original, smartly designed VOSS Box can increase the eye-value of your product?

KARL VOSS CORPORATION

HOBOKEN NEW JERSEY

KVC



"SALES promotion" covers a variety of methods, but none of them mean so much to the dealer or influence sales to as great an extent as smart, alluring VOSS Boxes.

Note how successfully VOSS craftsmen have met the needs of appropriate, appealing display in designing boxes for the articles illustrated.

Containers like these will make it easier for your dealers to clinch sales for your product.

KARL VOSS CORPORATION

HOBOKEN NEW JERSEY

KVC

XUM

VOSS Hand-made Boxes pay their way—they are not taboo to manufacturers who have a production cost schedule to adhere to. The cost difference between a machine product and a **VOSS** Hand-made Box is so slight that in many cases it is negligible.

The difference in appearance, however, is so great that it invariably results in a healthy sales increase for the product put up in a **VOSS** Box.

KVC

KARL VOSS CORPORATION

HOBOKEN NEW JERSEY

SYLPHRAP

"Greaseproof" and "Moistureproof"

Meets the Requirements of modern packaging

SYLVANIA INDUSTRIAL CORPORATION

Executive and Sales Offices: 122 E. 42nd St., New York City

Works: Fredericksburg, Va.

XUM

What does Modern Packaging Require of Transparent Cellulose

?

SYLPHRAP

Made in

weights · · · 300, 450, 600.
colors · · · · eleven
size sheets · stock approximately 40" x 48" or cut to any size
rolls · · · · any width up to 48"

SYLVANIA INDUSTRIAL CORPORATION

Executive and Sales Offices: 122 E. 42nd St., New York City *Works:* Fredericksburg, Va.

Transparency

The first essential is perfect transparency. In Sylphrap we offer you a wrapping material as transparent as the finest plate glass—as clear as crystal. The color, texture and every detail of the actual product or its package are as visible through Sylphrap as if the product were unwrapped.

Ease in Handling

Because of its strength and flexibility it can be handled with ease and speed in automatic wrapping machines or for handwrapping. It is obtainable in sheet form or in rolls, in a variety of sizes and widths.

Sealing

Sylphrap (moistureproof) can be tightly sealed with heat, avoiding the use of adhesives or solvents. Wrapping and sealing on rapid, automatic machines are simplified by this quick self-sealing feature. Hand wrapping and sealing can also be done without the usual disagreeable features of handling adhesives. Or adhesives may be used if desired.

Versatility

Being greaseproof, or moistureproof and absolutely sanitary, it can be used as a wrapping for almost any product: baked goods, sticky or hard candies, fish, dried fruits, cigars, cigarettes, textiles, etc. It can be fabricated into bags and envelopes or used as windows for boxes.

Bags & Envelopes

Bags and envelopes made of Sylphrap are very effective for many purposes. As containers for merchandise and samples they are being used with great success. The exceptional strength and folding qualities of Sylphrap make it especially suited for fabricating into bags and envelopes on automatic machines.

Printability

Sylphrap has remarkable printing qualities. Flashing masses of color or the most finely detailed designs can readily be printed on Sylphrap.

Character Dignity & Economy

Sylphrap on a product gives it a quality atmosphere. It shows the great care taken by the manufacturer to protect his product and insure its delivery to the consumer in perfect condition.

Service

Our technical staff will gladly assist you in your packaging problems and give you the benefit of its experience in this important field of merchandising —without the least obligation.

XUM

GREASEPROOF AND MOISTUREPROOF

SYLPHRAP IN COLORS

THERE are times when a product requires a gayer, more colorful attire than the plain white Sylphrap.

If yours is such a product, wrap it in one of the colored Sylphraps.

Larger samples will gladly be sent for testing purposes. Or, if you prefer, send us several packages of your product, and we will wrap them in several suitable colors and return them to you for your inspection.

The counsel of our packaging experts is available to you free of charge.

STANDARD COLORS

Dark Blue
Light Blue
Red
Pink
Violet
Orchid
Dark Green
Light Green
Tango
Amber
Black

STANDARD EMBOSSING

Linen, Silk

SYLVANIA INDUSTRIAL CORPORATION

Executive and Sales Offices: 122 E. 42nd St., New York City

Works: Fredericksburg, Va.

XUM

WILLIAMSON GLUES
Nationally used

What is your problem ?

FINDING the right glue for the purpose, is the first and most important step in your package sealing operations.

The development of many new wrapping materials, and the high rate of speed in automatic sealing operations, add to the difficulties of the problem. It often requires experimental laboratory work and actual trials on the gluing machines to determine the adhesive for a given case. Such preliminary investigation is always justified, because the proper glue is the key to production economy.

In our eighteen years' service to the packaging industry, we have developed many successful glue formulas, including cold glues for wax paper, waterproof gums for spot labels on tin, separate end seal paste, adhesives for transparent cellulose products, and glues for tight-wrapping, loose-wrapping and tube-winding. We have kept systematic records of this experience, so that we may have the facts at our finger tips for the benefit of our customers.

As an aid to our laboratory service, we maintain a cabinet display of hundreds of different samples of actual packages, sealed or labeled with our adhesives. Data are tabulated for each case, giving complete information as to the glue, the material and the method. In addition, we have a record of experiments made in solving special problems with the results indexed and filed for reference.

With this background of experience and fund of facts to draw upon, we believe that we can help you in working out individual adhesive problems and improving your production. Write and tell us your requirements—we offer our services without charge or obligation.

WILLIAMSON GLUE AND GUM WORKS

Incorporated 1914

2350 West Eighteenth Street, Chicago, Illinois

Telephone: ROOSEVELT 4201

CELLO-ADHESIVES

We specialize in cold odorless Adhesives for sealing or labeling packages, wrapped in transparent cellulose sheets, including Plain Cellophane, Moistureproof Cellophane, Sylphrap, Nymphrap Extra and other modern wraps—also for joining to glassine and coated papers.

Williamson Cellogrip is a positive adhesive for joining Moistureproof Cellophane to paper, and to plain or waxed cardboard in making window box cartons.

Williamson Cello-Paste is a heavy bodied, light colored paste for attaching paper labels or end seals to Plain Cellophane.

Williamson Cello-Adhesives are suitable for hand or machine application. They are stainless and sanitary, and may be used with impunity in sealing food products. These adhesives insure permanent adhesion and make smooth, flexible, invisible joints.

They are endorsed by manufacturers of cellulose products, as well as by builders of automatic sealing machines.

Write for *Descriptive Circulars*

Trial Sample on Request

Tell us the materials to be glued—or mail specimens—and we shall be glad to send you a trial sample of the proper adhesive for the job.

We do not believe there is any substitute for quality

Your Package
should be part of a plan

YOUR package is the foundation of your merchandising plan. That package — label, carton, wrapper — must have distinctive, colorful individuality.

Your merchandising plan must be "tied in" with your package. Your counter cards, display containers, window displays, posters, car cards—all must "high-spot" your product by means of colorful human appeal.

Select a *single* source of supply for all these materials—a color-printing establishment that can give you all-inclusive service—one which knows the proper way to pack and handle a thousand different items—one with a merchandising background—one that can co-ordinate your package with your advertising materials into a well-organized selling plan.

•

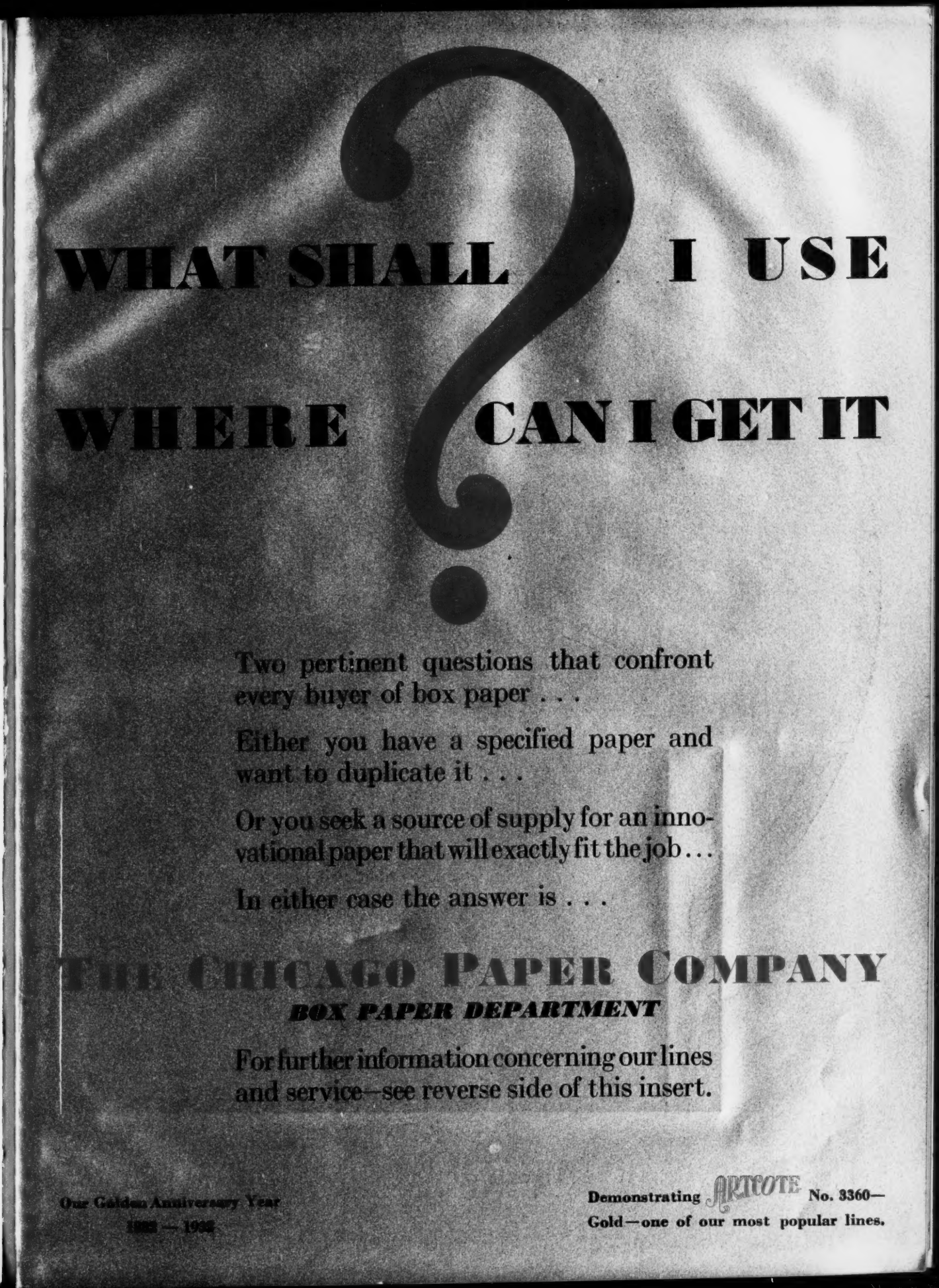
There's a "U S" Office near you:

BALTIMORE	KANSAS CITY
BOSTON	MINNEAPOLIS
BROOKLYN	NEW YORK
CHICAGO	PHILADELPHIA
CINCINNATI	PITTSBURGH
CLEVELAND	SAN FRANCISCO
DETROIT	SEATTLE
INDIANAPOLIS	ST. LOUIS

"Color Printing Headquarters"

THE UNITED STATES PRINTING & LITHOGRAPH CO.

CINCINNATI	BROOKLYN	BALTIMORE
111 Beech Street	102 N. Third Street	30 Cross Street


WHAT SHALL I USE
WHERE CAN I GET IT
Two pertinent questions that confront every buyer of box paper . . .
Either you have a specified paper and want to duplicate it . . .
Or you seek a source of supply for an innovational paper that will exactly fit the job . . .
In either case the answer is . . .
THE CHICAGO PAPER COMPANY
BOX PAPER DEPARTMENT
For further information concerning our lines and service—see reverse side of this insert.
Our Golden Anniversary Year
1883 — 1933
Demonstrating ARTCOTE No. 3360—
Gold—one of our most popular lines.

XUM

SOLVED!

The Question:
What Paper Shall I Use
—*and* Where Shall I Get It?

Our box paper line furnishes a ready answer. Here are all types of paper—every new design and texture, foreign and domestic, ready for your selection. The one best paper for your needs can be chosen with speed and certainty from our comprehensive line.

Fill out and mail the attached prepaid card. You will receive samples carefully selected to meet your requirements by our packaging counselors.

PREPAID POST CARD—TEAR OFF AND MAIL

Chicago Paper Company
801 S. Wells Street, Chicago, Illinois

Attention Mr. Wm. Schild

Gentlemen:

Without obligation to us forward samples best suited for the following:

Box to contain: _____

Size: _____

Purpose: _____

Respectfully yours,

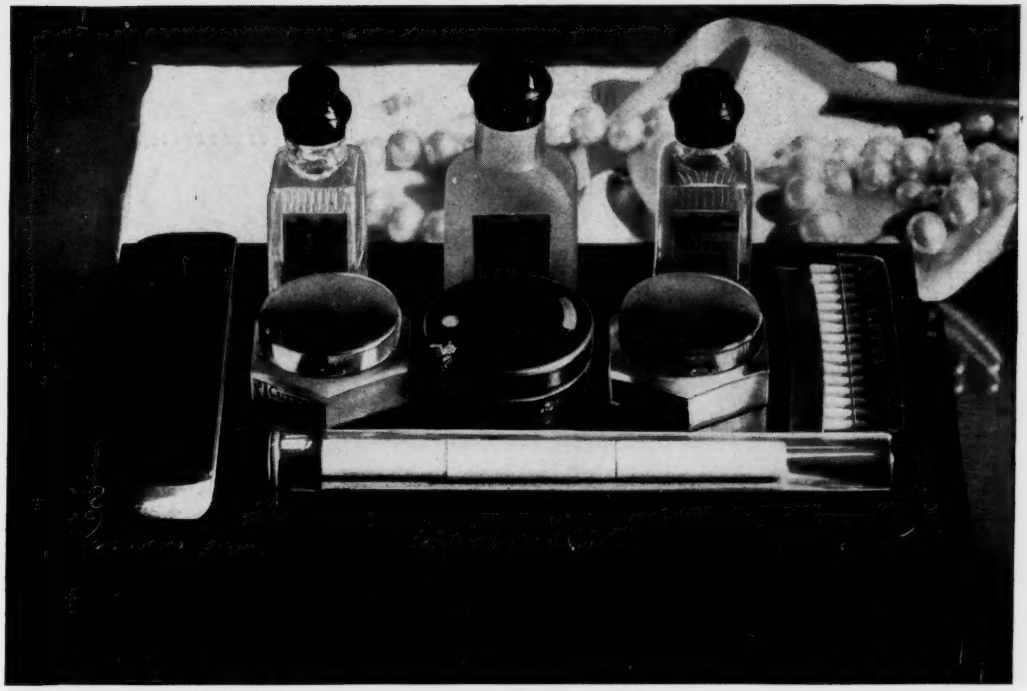
Name _____

Address _____

☐ Send additional inquiry cards

CHICAGO PAPER COMPANY

801 South Wells Street, Chicago



MOLDED CONTAINERS & CLOSURES
THAT CREATE CONSUMER INTEREST

TO increase the appeal of a product nothing is more effective than a convenient, attractive container or cap.

The Cutex Tray Container shown above and Cutex cap below were molded by us. They are playing a most important part in the merchandising of these celebrated beauty aids.

We are completely equipped for designing and producing molded containers, closures and other articles from Bakelite, Durez, Lumarith, Beetle.

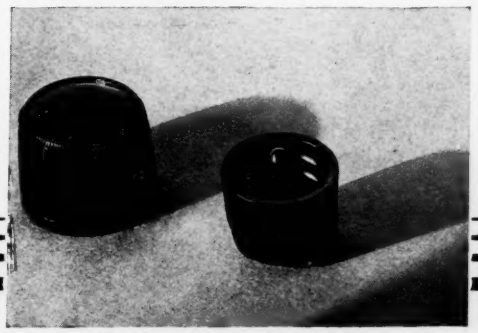
Write us about your molding problem. Our Metal Goods Division will solve your Metal problems.

WATERBURY BUTTON COMPANY

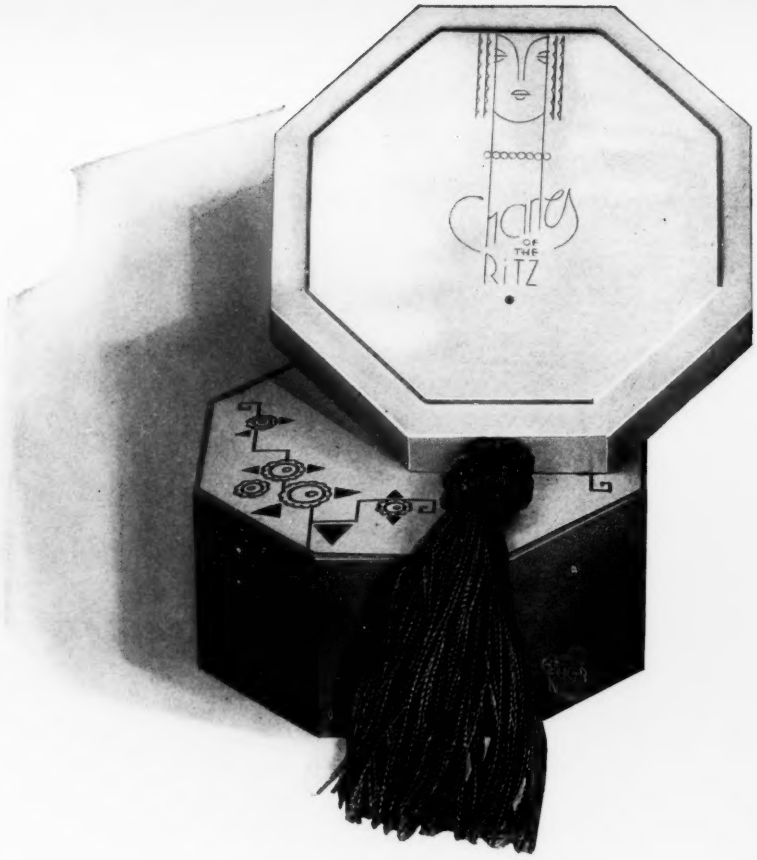
"Specialty Dept."

ESTABLISHED 1812

WATERBURY, CONN.



XUM



SOME PACKAGING EQUATIONS

A Box = the Embodiment of an Idea

Boxes + Ideas = Waterbury

Boxes + Ideas = Increased Sales for You

∴ Waterbury = Increased Sales for You

Q. E. D.

Waterbury Paper Box Company

Factory and Main Office
Waterbury, Conn.

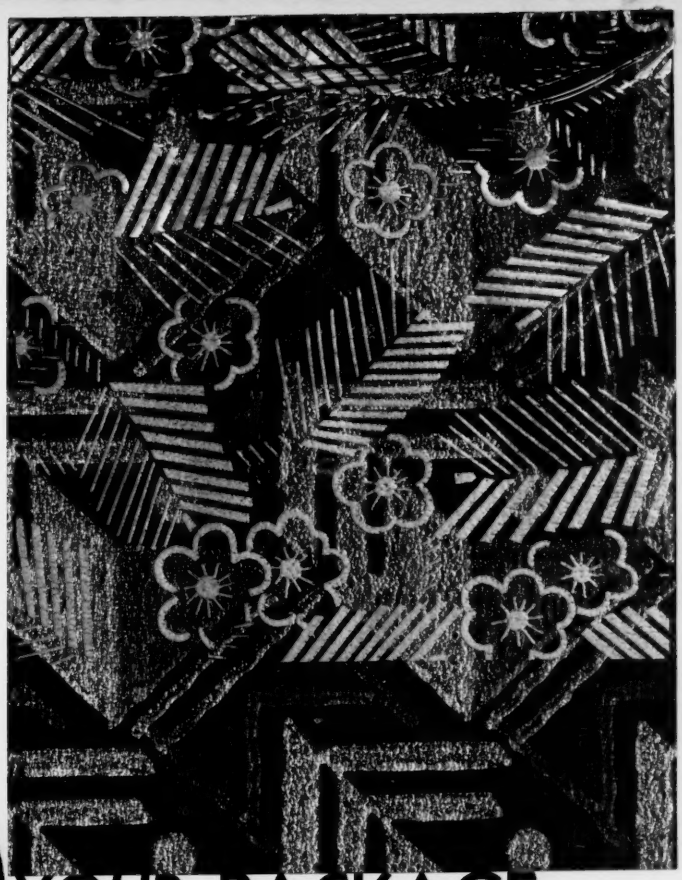
New York Office
F. L. BUTZ,
H. T. WARREN
100 East 42nd St.

Chicago Office
CHARLES A. RINDEL, INC.
64 W. Randolph St.

Cincinnati Office
WILLIAM T. NESBITT, JR.
1402 Walnut St.

San Francisco Office
CHAS. H. CURRY
1334 Van Ness Ave.

"When you think of boxes — think of Waterbury"



YOUR PACKAGE—

will be outstanding in appeal if it is styled using Whiting-Patterson-Supple Co. Coverings. Our 1932 Imported and Domestic lines are smarter in ideas, designs, colors and patterns—and are greater in variety than ever before.

Box maker and manufacturer alike will find it profitable to see and to use our newest ideas in coverings. Our samples are ready—send for them now.

Whiting-Patterson-Supple Co. Inc.

386 Fourth Avenue New York City

Boston	Philadelphia	Chicago	Minneapolis
St. Paul	San Francisco	Los Angeles	Denver

XUM

INVITING to look at HAND TAILORED to fit

you'd hardly know it was a bag

These are interesting examples of adapting bags to particular products. Not only are they striking packages in coloring and appearance, but the one for the insecticide is an exceptionally strong, sift-proof double bag specially developed by Union technical experts and approved by Government authorities as a shipping container for poisonous powders; the other is duplex —two sheets of cellophane to preserve the freshness and take advantage of the eye appeal of the shredded cocoanut itself.

THESE are days of economy. Yet package economy need not be at the expense of good looks.

A *Special* Bag package can be and often is striking in appearance and sales-inviting...and 9 times out of 10 it is far cheaper than other types of packages. Frequently even less than automatic wrapping.

Special Bags are suitable for most any packaged product...from doughnuts to machinery parts. For *Special* Bags are tailored to fit...designed to sell, constructed to protect and fitted to the production routine of a particular product.

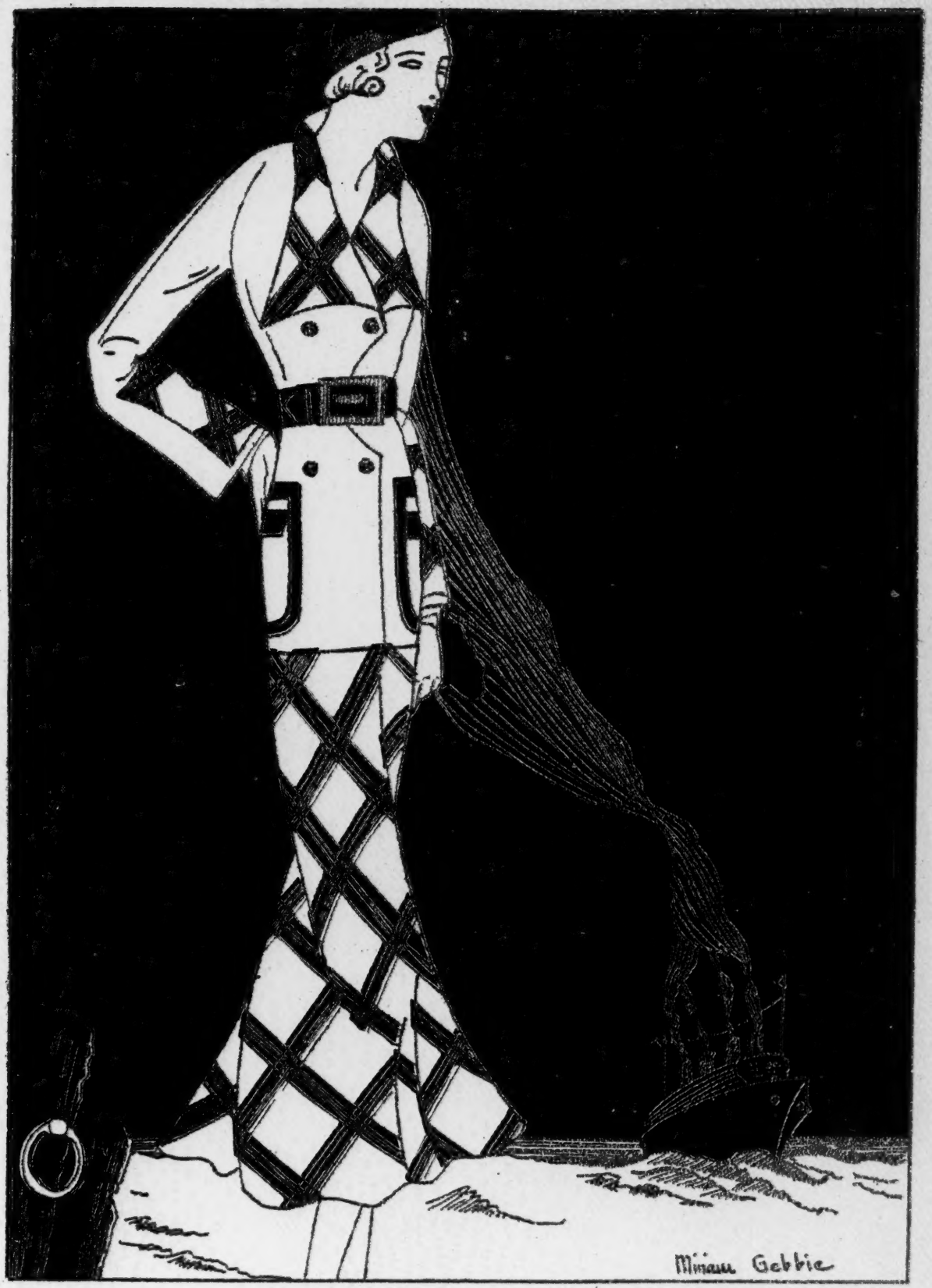
Union are bag experts, have been for 50 years. We make bags out of everything from cellophane to duplex kraft fibre that feels and acts like leather.

Tell us your product...and let us show you how cheaply, and yet attractively, it may be packaged with a Union Bag.

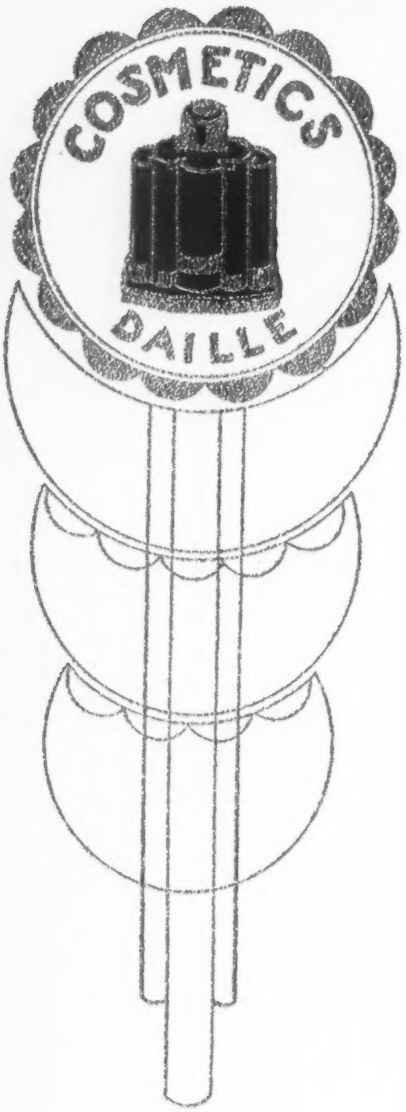
UNION BAG & PAPER CORPORATION

• MANUFACTURERS OF ALL MANNER OF PAPER BAGS AND SACKS •

GENERAL OFFICES · WOOLWORTH BLDG · NEW YORK CITY



"COLOR IN HIGH RELIEF"
The Virkotype Process



SUPERLATIVE

The great Craftsmen of the Middle Ages discovered the value of raising design in relief. They combined hand-carving with color to obtain superlative decorative effect.

Today Virkotype offers for package decoration the same effect of high relief, combined with brilliant color in Permanent and Flexible form at nominal added cost over flat printing.

High Relief is obtained with the use of ordinary line cuts or type on any weight of stock, in one automatic operation, feeding from any high speed press. Gold, Silver or any color may be processed alone, or used in combination with flat printed colors.

We will gladly supply full details regarding the equipment and materials necessary to produce this distinctive process, or furnish names of concerns equipped to do this work for you.

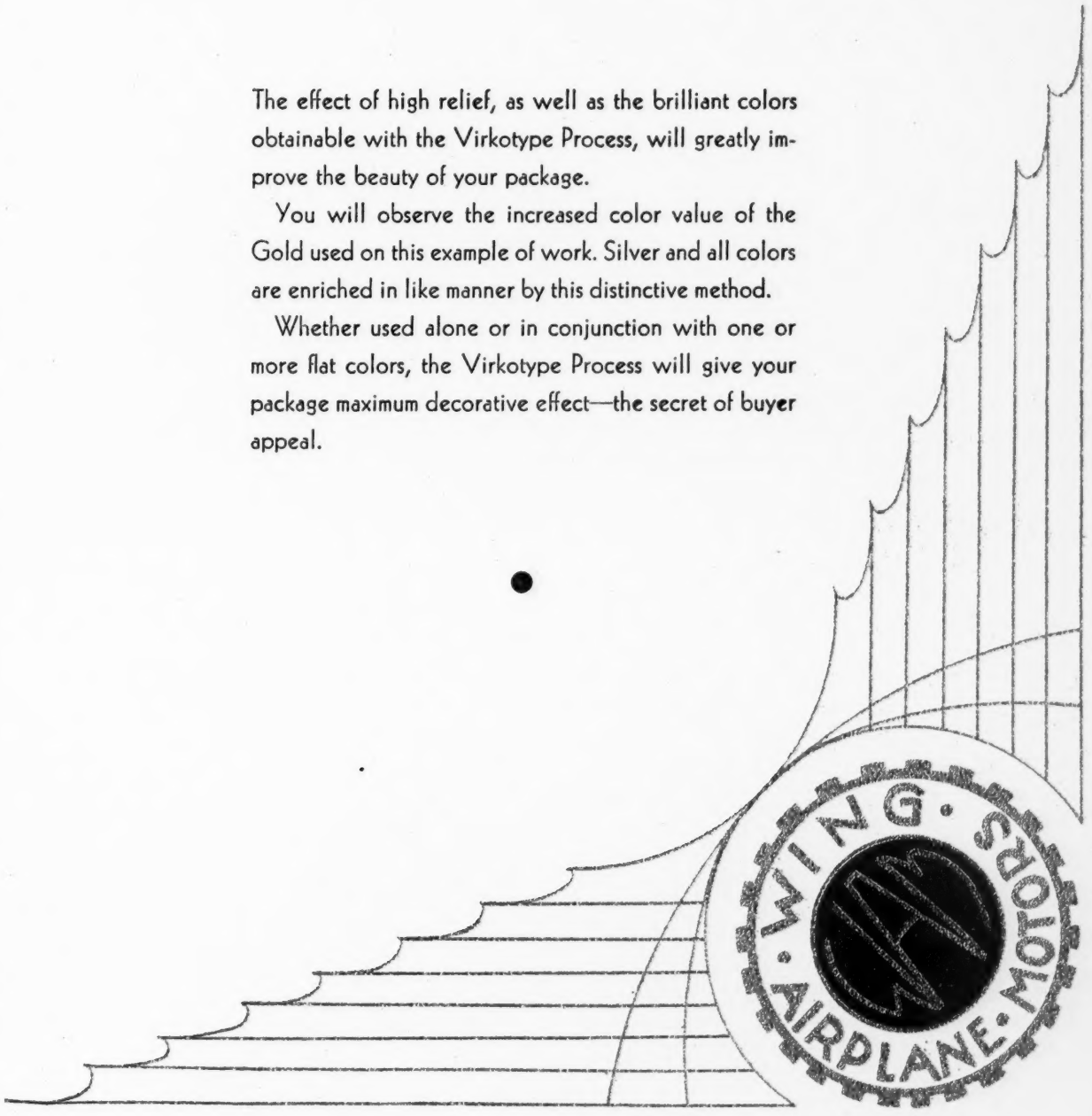
WOOD, NATHAN & VIRKUS CO.
Incorporated
112 Charlton Street New York City

PACKAGE DECORATION

The effect of high relief, as well as the brilliant colors obtainable with the Virkotype Process, will greatly improve the beauty of your package.

You will observe the increased color value of the Gold used on this example of work. Silver and all colors are enriched in like manner by this distinctive method.

Whether used alone or in conjunction with one or more flat colors, the Virkotype Process will give your package maximum decorative effect—the secret of buyer appeal.



XUM

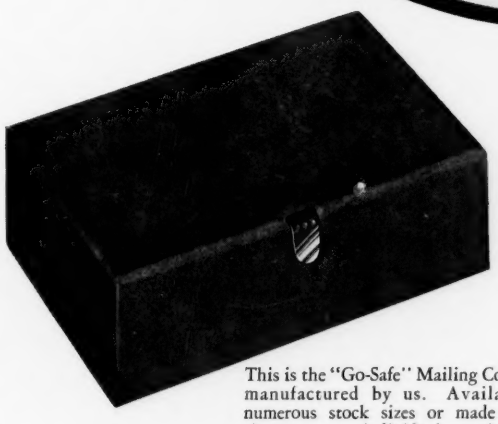
PAPER . . . . . The paper for this insert is BUFF SATEEN No. 217, made by the HAMPDEN GLAZED PAPER & CARD COMPANY, Holyoke, Massachusetts.

RAISED EFFECTS . . . . . Produced with VIRKOTYPE Compounds and Inks manufactured by WOOD, NATHAN & VIRKUS COMPANY, INC., New York City.

PHOTO-ENGRAVING . . . By the EASTERN PHOTO-ENGRAVING CO., New York City.

PRINTING AND PROCESS . By the HANOGRAF CORPORATION, New York City.

XUM



This is the "Go-Safe" Mailing Container manufactured by us. Available in numerous stock sizes or made in any size to your individual requirements.

DE LUXE BOXES for DE LUXE PRODUCTS

AN EFFECTIVE presentation in merchandising a product is more than half the battle in selling.

Above are shown some of the unique, distinctive boxes designed and manufactured by us for jewelry, novelty and cosmetic manufacturers.

We have exceptional facilities for producing boxes of this character. If your product requires a more attractive setting to help dealers clinch sales, tell us about it, and we will make up a sample container for your approval—without cost or obligation.

YOUNG BROTHERS, INC.

PROVIDENCE, R. I.

130 West 42nd St. (WIsconsin7-5722) New York City

» Makers of Paper Boxes for over Fifty Years «

XUM

PETERS MACHINERY COMPANY

GENERAL OFFICE AND FACTORY 4700 RAVENSWOOD AVE

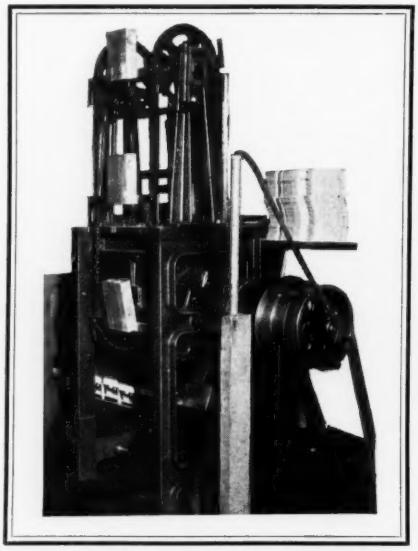
CHICAGO.U.S.A

PRODUCTS:

Package Forming and Lining Machines, Package Folding and Closing Machines, Package Wrapping and Labeling Machines and other special automatic equipment for peculiar Packaging Problems.

PETERS PACKAGE FORMING AND LINING MACHINE:

The Forming and Lining Machine takes the carton blank and a superimposed sheet of paraffine, parchment or other protective paper suitable for goods to be packed and simultaneously forms them into an open receptacle, interfolding the lining with the flaps so that they become an integral part of each other, and locks the tucking flaps into place. This forms a smoothly lined receptacle without any projecting edges or folds so that the contents may be readily inserted and without any disarrangement of the protective lining. Further, the lining, by reason of the peculiar interfolding, is so interlocked with the flaps of the carton that it can be withdrawn from the carton. There is no paste, glue, or other adhesive used in the assembling of this receptacle.



Peters Package Forming and Lining Machine

The machine is equipped with three-step cone pulley for belt drive or direct drive equipment, including motor. The speed of the machine may be varied to meet the requirements of the filling or packing operations, and a conveyor drive pulley is made an integral part so that the cartons can be conveyed by canvas belt to any desired location.

This machine will replace from five to seven hand operators and effects an annual saving of about $3500.00.

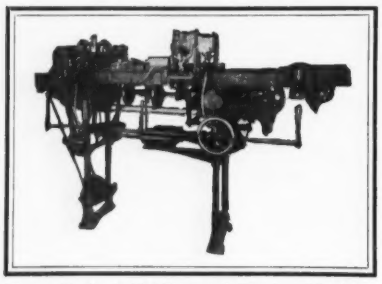
Forms and lines 40 packages per minute. Requires but one operator. Weight 1000 pounds; floor space, 4′ x 4′. One-quarter horsepower to drive.

PETERS PACKAGE FOLDING AND CLOSING MACHINE:

The package, after being filled either by hand or, where the nature of the goods warrants, by a filling machine, is now ready to be folded and closed on this machine. Our automatic filling machine is not shown on this page, due to the variety of construction depending on the different articles to be packed. The folding machine takes the filled but unclosed package and automatically folds the up-standing portions of the lining and carton so that the goods are completely enveloped by the lining, then closes down the cover and inserts the front flap, making a rigid and firm package.

The machine is entirely automatic and does not require an operator, but we have found it desirable that the inspector be stationed at this machine to see that the packages are properly and neatly filled. The inspector does not need to touch the machine, however.

If desired, an attachment can be furnished to place an advertising slip or other printed matter into the package before the cover is closed down.



Peters Package Folding and Closing Machine

Where no outside wrapper is required and the carton itself is printed or lithographed, a Sealing Attachment can be furnished to place a seal of any desired size across the edge of the package so that it cannot be opened without destroying such seal.

We also build a duplex folding and closing machine, having double the capacity of the single. The single machine replaces from five to seven hand operators and effects an annual saving of about $3500.00.

Folds and closes 40 packages per minute. One operator (optional). Weight 1000 pounds. Floor space required, 2′ x 6′. One-quarter horsepower to drive.

PETERS JUNIOR FORMING AND LINING MACHINE:

This new Peters Junior Forming and Lining Machine produces formed and lined cartons at the rate of 35 to 40 per minute and requires only *one operator*.

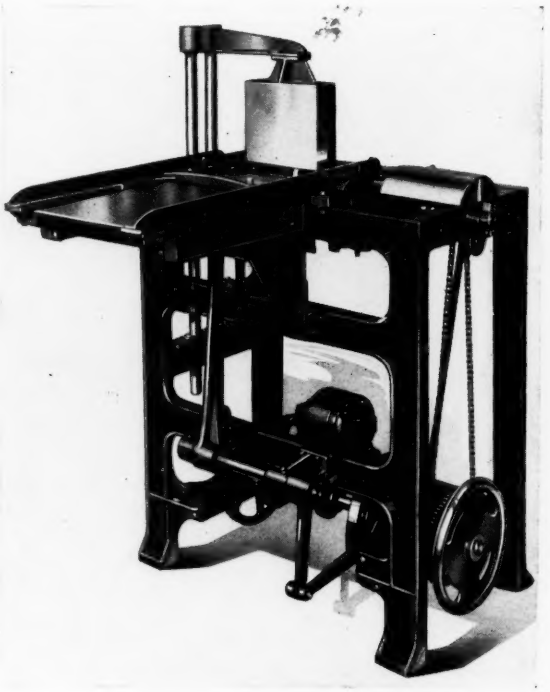
The great feature of adjustability permits the machine to be quickly changed from one size carton to another.

The necessary forms and blocks to make these changes are furnished at small additional cost.

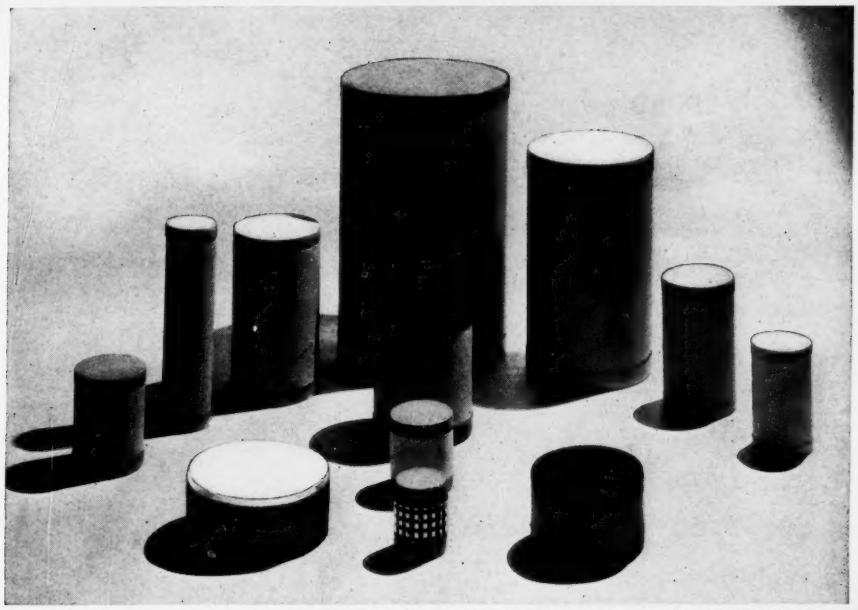
Completely formed and lined cartons are delivered automatically to any conveyor from whence they may be diverted to a packing table or filling unit.

Automatic coding or dating devices may be incorporated on the machine when required.

Quiet, easy and efficient.



Peters Junior Forming and Lining Machine



Seeley
PAPER PRODUCTS

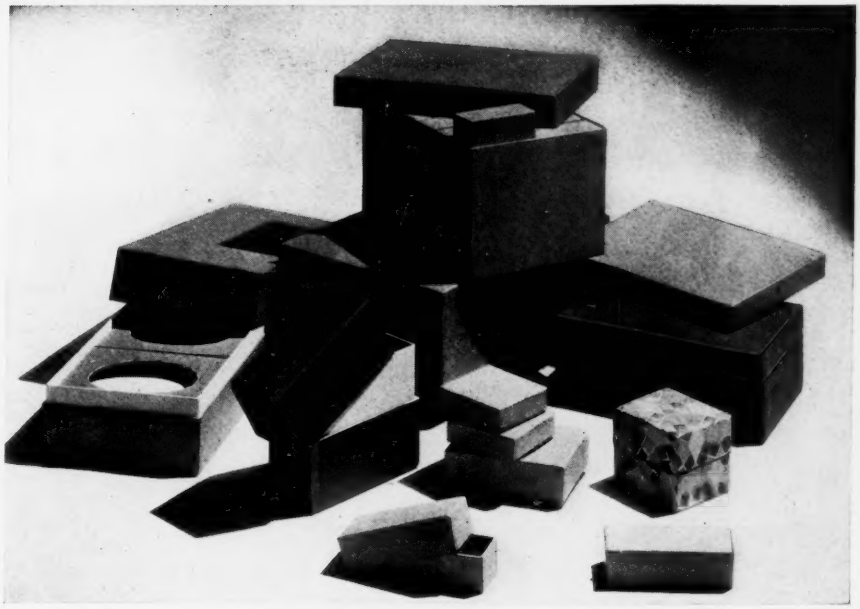
PAPER BOXES
•
PAPER TUBES
•
PAPER CANS
•
PAPER CORES
•
PAPER SPECIALTIES

Spiral wound fibre cans—fibre top and bottom—plain, fancy paper covered or wrapped with your own label—all sizes.

Face Powder drums, round—all sizes.

Mailing tubes, open and closed ends, all dimensions and weights prepared according to specifications.

Display boxes for specialties, with die cut liners for soaps, perfumes, drugs and other commodities.



Fancy boxes for jewelry, perfume, soap, hairpins, knives, stickers, etc.

Metal tab mailing boxes, Kraft covered, of unusual strength in all sizes and weights.

SEELEY TUBE AND BOX COMPANY

140-170 THOMAS ST.

NEWARK, N. J.

XUM

Buyers' Directory Section

THE policy of the PACKAGING CATALOG in the Directory Section is to list every reliable American manufacturer of machinery, equipment or supplies selling to the packaging industries (as far as we can locate them) without charge, under as many headings as are required for an adequate showing of their products. It is only by this policy that the Directory can be made representative of the facilities of the entire packaging field.

All concerns represented in the catalog section of this volume are listed in bold face type under appropriate headings, and further prominence is conferred by giving in each instance the page or pages upon which their data appears. This feature serves as a time saver and it is believed will increase the detailed information and data packaging concerns seek.

The recommendation is earnestly made that the Directory be used in conjunction with the Catalog pages and the information given in the text section, as much valuable information can be found concerning products, if reference is made to the concerns whose page numbers are given under the various subject headings.

Buyers' Directory of the Packaging Industries

For information concerning equipment listed below, see catalog pages indicated by numbers appearing after advertisers' listings

ABSORBENT WADDING

International Paper Co., New York, N. Y.
Kimberly-Clark Corp., Neenah, Wis.—196-197

ADHESIVES

Adex Mfg. Co., Baltimore, Md.
Arabol Mfg. Co., New York, N. Y.—101
Bakelite Corp., New York, N. Y.—118
Carbide & Carbon Chemicals Corp., New York, N. Y.
Casein Mfg. Co. of America, Inc., The, New York, N. Y.
Cibara Mfg. Co., St. Louis, Mo.
Consumers Glue Co., St. Louis, Mo.
Dewey & Almy Chemical Co., Cambridge, Mass.
Ermold Co., Edward, New York, N. Y.—142
Findley Co., F. G., Milwaukee, Wis.
Frohman Chemical Co., Sandusky, O.
Gane Bros. & Lane, Inc., Chicago, Ill.
General Plastics, Inc., North Tonawanda, N. Y.—122-123
Grasselli Chemical Co., Cleveland, O.
Leyland Co., Inc., Thos., Readville, Mass.
Manhattan Paste & Glue Co., New York, N. Y.
Mechling Chemical Co., Camden, N. J.
National Adhesives Co., New York, N. Y.
Philadelphia Quartz Co., Philadelphia, Pa.
Russia Cement Co., Gloucester, Mass.
Standard Sealing & Equipment Corp., Long Island City, N. Y.
Standard Silicate Co., Cincinnati, O.
Stein-Hall & Co., New York, N. Y.
Union Paste Co., Medford, Mass.
Williamson Glue & Gum Works, Chicago, Ill.—261

ADHESIVES (for Transparent Cellulose)

Arabol Mfg. Co., New York, N. Y.—101
Carbide & Carbon Chemicals Corp., New York, N. Y.
Du Pont Cellophane Co., New York, N. Y.
National Adhesives Co., New York, N. Y.
Sylvania Industrial Corp., New York, N. Y.—Insert 260-261
Union Paste Co., Medford, Mass.
Williamson Glue & Gum Works, Chicago, Ill.—261

ADVERTISING NOVELTIES

Allen & Hills, Inc., Auburn, N. Y.—97
Auburn Button Works, Inc., Auburn, N. Y.—105
Boonton Molding Co., Boonton, N. J.
Chicago Molded Products Corp., Chicago, Ill.
Colt's Patent Fire Arms Mfg. Co., Hartford, Conn.—156-157
Consolidated Safety Pin Co., Bloomfield, N. J.—120
Hygienic Tube & Container Co., Newark, N. J.—125
Klip-Spoon, Inc., New York, N. Y.—168
Kurz-Kasch Co., The, Dayton, O.
Norton Laboratories, Inc., Lockport, N. Y.—189-192
Northern Industrial Chemical Co., South Boston, Mass.—169
Silcocks Miller Co., S. Orange, N. J.
Waterbury Button Co., Waterbury, Conn.—263

AIR CONDITIONING APPARATUS

Cooling & Air Conditioning Corp., New York, N. Y.
Carrier Engineering Corp., Newark, N. J.
Maryland Air Conditioning Co., Baltimore, Md.
York Heating & Ventilating Co., Philadelphia, Pa.

BAGS, BURLAP, COTTON

American Bag Co., Memphis, Tenn.
American Mills Co., Atlanta, Ga.
Ames-Harris-Neville Co., San Francisco, Cal.
Bartley Mfg. Co., New York, N. Y.
Beaumont Bag Co., Beaumont, Tex.
Bell Bag Co., Inc., Baltimore, Md.
Bemis Bros. Bag Co., St. Louis, Mo.
Brooklyn Mailing Device Co., Brooklyn, N. Y.
Central Bag Mfg. Co., Chicago, Ill.
Chase Bag Co., St. Louis, Mo.
Chester Burlap Bag Co., H., Cleveland, O.
Cleveland-Akron Bag Co., Cleveland, O.
Cleveland Buckram & Bag Co., Cleveland, O.
Feitel Bag Co., Dan W., New Orleans, La.
Fleischer Bros., Inc., Chelsea, Mass.
Fulton Bag & Cotton Mills, Atlanta, Ga.
Hutchinson Bag Co., Hutchinson, Kan.
National Bag Co., Naperville, Ill.
Pacific Bag & Burlap Co., New York, N. Y.
Philadelphia Bag Co., Philadelphia, Pa.
Pittsburgh Bag & Burlap Co., Pittsburgh, Pa.
Royal & Co., Thomas M., Philadelphia, Pa.
Schaefer Tent & Awning Co., Denver, Colo.
Southern States Bag Co., Jacksonville, Fla.
Sterling Bag & Burlap Co., Buffalo, N. Y.
Theise Mfg. Co., Fred'k., Boston, Mass.
U. S. Bagging Co., Greenville, S. C.
Wertheimer Bag Co., Birmingham, Ala.

BAGS, GLASSINE

American Paper Goods Co., Kensington, Conn.—95
Bemis Bros. Bag Co., St. Louis, Mo.
Brown Bag Filling Machine Co., Fitchburg, Mass.—110
Brown Paper Goods Co., Chicago, Ill.
Betner Co., Ben. C., Devon, Pa.
Central Waxed Paper Co., Chicago, Ill.
Continental Paper & Bag Corp., New York, N. Y.
Disbrow Manufacturing Co., Inc., The, Newark, N. J.
Dobeckmun Co., The, Cleveland, O.—Insert 102-103
Henle Wax Paper Mfg. Co., Inc., The, New York, N. Y.
Herz Co., Alexander, New York, N. Y.
Matthias Paper Corp., Philadelphia, Pa.—Insert 254-255
Nashua Gummed & Coated Paper Co., Nashua, N. H.—Insert 252-253
Newark Glassine Bag Co., Newark, N. J.
Newark Paraffine & Parchment Paper Co., Newark, N. J.
Oneida Paper Products, Inc., Brooklyn, N. Y.
Riegel Paper Corp., New York, N. Y.—Insert 164-165.
Royal Co., Thomas M., Philadelphia, Pa.
Shamut Waxed Paper Co., Holliston, Mass.
Unger-Commercial Co., The, Cleveland, O.
Union Bag & Paper Co., New York, N. Y.—266
United States Envelope Co., Springfield, Mass.
Westfield River Paper Co., Inc., Russell, Mass.—Insert 172-173

BAGS, MAILING

Ames Bag Machine Co., Cleveland, O.
Bemis Bros. Bag Co., St. Louis, Mo.
Berkowitz & Co., Kansas City, Mo.
Betner Co., Ben. C., Devon, Pa.
Cannon Ball Mfg. Co., Dallas, Tex.
Chase Bag Co., Cleveland, O.
Cleveland-Akron Bag Co., Cleveland, O.
Columbus Mailing Bag Co., Columbus, O.
Disbrow Mfg. Co., Inc., The, Newark, N. J.
Humphreys Sons, Inc., R. A., Philadelphia, Pa.
Mason Box Co., The, Attleboro Falls, Mass.—Insert 120-121
Milhiser Bag Co., Inc., Richmond, Va.
Milwaukee Bag Co., Milwaukee, Wis.
National Bag Co., Naperville, Ill.
Ohio Buff & Mfg. Co., Cincinnati, O.
Wolf Brothers, Philadelphia, Pa.

BAGS, PAPER

Adams Bag Co., Chagrin Falls, O.
American Paper Goods Co., Kensington, Conn.—95
Angelus Bag & Paper Co., Los Angeles, Cal.
Angier Corp., Framingham, Mass.
Arkell & Smith, Canajoharie, N. Y.
Arkell Safety Bag Co., New York, N. Y.
Atlanta Paper Co., Atlanta, Ga.
Bagpak, Inc., New York, N. Y.
Bancroft Bag Factory, West Monroe, La.
Bates Valve Bag Co., New York, N. Y.
Beecher, Peck & Lewis, Detroit, Mich.
Bell Bag Co., Inc., Baltimore, Md.
Bemis Bros. Bag Co., St. Louis, Mo.
Betner Co., Ben. C., Devon, Pa.
Blake Moffit & Towne, San Francisco, Cal.
Brown Bag Filling Machine Co., Fitchburg, Mass.—110
Brown Paper Goods Co., Chicago, Ill.
California Bag & Paper Co., Emeryville, Cal.
Chase Bag Co., Cleveland, O.
Chatfield & Woods Co., Cincinnati, O.
Chicago-Detroit Bag Co., Chicago, Ill.
Cleveland-Akron Bag Co., Cleveland, O.
Columbia Paper Bag Co., Baltimore, Md.
Continental Paper & Bag Mills, New York, N. Y.
Disbrow Mfg. Co., Inc., The, Newark, N. J.
E-Z Opener Bag Co., Decatur, Ill.
Fulton Bag & Cotton Mills, Atlanta, Ga.
George & Sherrard Paper Co., New York, N. Y.
Hercules Paper Bag Co., Reading, Pa.
Hollis & Duncan, Chicago, Ill.
Hudson Bag Co., Brooklyn, N. Y.
Jaite Co., Jaite, O.
Milwaukee Bag Co., Milwaukee, Wis.
National Paper Co., Atlanta, Ga.
Oneida Paper Products, Inc., Brooklyn, N. Y.
Orchard Paper Co., St. Louis, Mo.
Raymond Bag Co., The, Middletown, O.
Royal, Thos. M. & Co., Philadelphia, Pa.
Taggart Bros. Co., New York, N. Y.
Tarentum Paper Mills, Pittsburgh, Pa.
Tuttle Press Co., The, Appleton, Wis.
Unger-Commercial Co., The, Cleveland, O.
Union Bag & Paper Co., New York, N. Y.—266
Union Paper & Twine Co., Cleveland, Ohio.
U. S. Paper Goods Co., Cincinnati, O.
Valve Bag Co. of America, Toledo, O.
Wayne Paper Goods Co., Ft. Wayne, Ind.
Wolf Bros., Philadelphia, Pa.
Wortendyke Mfg. Co., Richmond, Va.
Zellerbach Paper Co., Sacramento, Cal.

BAGS, SPECIALTY

American Paper Goods Co., Kensington, Conn.—95
Bagpak, Inc., New York, N. Y.
Bemis Bros. Bag Co., St. Louis, Mo.
Betner Co., Ben. C., Devon, Pa.
Brown Bag Filling Machine Co., Fitchburg, Mass.—110
Continental Paper & Bag Corp., New York, N. Y.
Disbrow Mfg. Co., Newark, N. J.
Dobeckmun Co., The, Cleveland, O.—Insert 102-103
Milwaukee Printing Co., Milwaukee, Wis.
National Metal Edge Box Co., Philadelphia, Pa.—165
Oneida Paper Products, Inc., Brooklyn, N. Y.
Royal Co., Thomas M., Philadelphia, Pa.
Union Bag & Paper Co., New York, N. Y.—266
Wolf Brothers, Philadelphia, Pa.

BAGS, TRANSPARENT CELLULOSE

American Paper Goods Co., Kensington, Conn.—95
Automat Molding & Folding Co., Toledo, O.—106-107
Brown Paper Goods Co., Chicago, Ill.
Betner Co., Ben. C., Devon, Pa.
Dobeckmun Company, The, Cleveland, O.—Insert 102-103
Envo Co., The, New York, N. Y.
Herz Co., Alexander, New York, N. Y.
Mason Envelope Co., New York, N. Y.
Matthias Paper Corp., Philadelphia, Pa.—Insert 254-255
Milprint Products Corp., Milwaukee, Wis.—Insert 256-257
Milwaukee Printing Co., Milwaukee, Wis.
Nashua Gummed & Coated Paper Co., Nashua, N. H.—Insert 252-253
Newark Glassine Bag Co., Newark, N. J.
Newark Paraffine & Parchment Paper Co., Newark, N. J.
Package Paper Co., Holyoke, Mass.
Royal Co., Thomas M., Philadelphia, Pa.
Smack Corporation, The, New York, N. Y.
Transparent Packaging & Prtg. Co., New York, N. Y.
Unger-Commercial Co., The, Cleveland, O.
Union Bag & Paper Co., New York, N. Y.—266
United States Envelope Co., Springfield, Mass.
Wolf Brothers, Philadelphia, Pa.

BAGS, WAXED PAPER

American Paper Goods Co., Kensington, Conn.—95
American Tissue Mills, Holyoke, Mass.
Brown Paper Goods Co., Chicago, Ill.
Betner Co., Ben. C., Devon, Pa.
Central Waxed Paper Co., Chicago, Ill.
Continental Paper & Bag Corp., New York, N. Y.
Dobeckmun Co., The, Cleveland, O.—Insert 102-103
Henle Wax Paper Mfg. Co., Inc., The, New York, N. Y.
Herz Co., Alexander, New York, N. Y.
Matthias Paper Corp., Philadelphia, Pa.—Insert 254-255
Nashua Gummed & Coated Paper Co., Nashua, N. H.—Insert 252-253
Newark Glassine Bag Co., Newark, N. J.
Newark Paraffine & Parchment Paper Co., Newark, N. J.

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Buyers' Directory of the Packaging Industries

For information concerning equipment listed below, see catalog pages indicated by numbers appearing after advertisers' listings

Oneida Paper Products, Inc., Brooklyn, N. Y.
Orchard Paper Co., St. Louis, Mo.
Package Paper Co., Holyoke, Mass.
Riegel Paper Corp., New York, N. Y.—Insert 164–165
Royal Co., Thomas M., Philadelphia, Pa.
Shamut Waxed Paper Co., Holliston, Mass.
Unger-Commercial Co., The, Cleveland, O.
Union Bag & Paper Co., New York, N. Y.—266
United States Envelope Co., Springfield, Mass.

BAGS, WINDOW

Betner Co., Ben. C., Devon, Pa.
Dobeckmun Co., The, Cleveland, O.—Insert 102–103
Royal Co., Thomas M., Philadelphia, Pa.
Union Bag & Paper Co., New York, N. Y.—266
United States Envelope Co., Springfield, Mass.

BALE TIES

Acme Steel Co., Chicago, Ill.—96
American Steel & Wire Co., Chicago, Ill.
Gerrard Co., Inc., Chicago, Ill.
Grammes, L. F., & Sons, Allentown, Pa.
Roebling, John, & Sons Co., Trenton, N. J.
Shelby Wire Co., Shelby, O.
Signode Steel Strapping Co., Chicago. Ill.
Stanley Works, New Britain, Conn.
Tennant & Sons, Inc., C. W., New York, N. Y.
Union Steel & Wire Co., Indianapolis, Ind.

BALING PRESSES

Davenport Mfg. Co., Davenport, Iowa
Economy Baler Co., Ann Arbor, Mich.
Galland-Henning Co., Milwaukee, Wis.
Logemann Brothers Co., Milwaukee, Wis.
Trojan Mfg. Co., Grand Rapids, Mich.

BARREL HEAD LINERS

Angier Corp., Framingham, Mass.
Consolidated Paper Co., Monroe, Mich.—149
Edgewater Paper Co., Menasha, Wis.
Fort Orange Paper Co., Castleton-on-Hudson, N. Y.—183–184
Hinde & Dauch Paper Co., Sandusky, O.
Hummel & Downing Co., Milwaukee, Wis.
Kalamazoo Vegetable Parchment Co., Kalamazoo, Mich.—150
Nashua Gummed & Coated Paper Co., Nashua, N. H.—Insert 252–253
Paterson Parchment Paper Co., Passaic, N. J.—176
Rexford Paper Co., Milwaukee, Wis.
Safepack Mills, Millis, Mass.
West Carrollton Parchment Co., West Carrollton, O.

BARRELS, SLACK

Farmers Mfg. Co., Norfolk, Va.
Fessenden Companies, Inc., Townsend, Mass.
Greif Bros. Cooperage Co., Cleveland, O.
K. W. Jacobs Cooperage Co., Milwaukee, Wis.
Mancuso Cooperage Co., Inc., Kenner, La.
Sandusky Cooperage & Lumber Co., St. Louis, Mo.
St. Louis Cooperage Co., St. Louis, Mo.
Virginia Barrel Co., The, Winchester, Va.
Western Cooperage Co., Portland, Ore.

BARRELS, STEEL

Atlas Steel Barrel Corp., New York, N. Y.
Cleveland Steel Barrel Co., Cleveland, O.
Draper Mfg. Co., Cleveland, O.
Hydraulic Pressed Steel Co., Cleveland ,O.
Knapp Metal Barrel Co., San Francisco, Cal.
Mahoning Steel Products Co., Warren, O.
National Enameling & Stamping Co., New York, N. Y.
National Steel Barrel Co., Cleveland, O.
Ohio Corrugating Co., Warren, O.
Petroleum Iron Works Co., Sharon, O.
Toledo Steel Barrel Co., Toledo, O.
Virginia Barrel Co., Winchester, Va.
Western Steel Products Co., Duluth, Minn.
Western Steel Package Co., Oakland, Cal.
Wilson & Bennett Mfg. Co., Chicago, Ill.

BARRELS, TIGHT

Atlantic Tank & Barrel Corp., North Bergen, N. J.
Fessenden Companies, Inc., Townsend, Mass.
C. G. Hopkins Cooperage Co., Joplin, Mo.
K. W. Jacobs Cooperage Co., Milwaukee, Wis.
Northern Cooperage Co., St. Paul, Minn.
Pekin Cooperage Co., Pekin, Ill.
Sandusky Cooperage & Lumber Co., St. Louis, Mo.
St. Louis Cooperage Co., St. Louis, Mo.
B. C. Sheahan Co., Chicago, Ill.
Western Cooperage Co., Portland, Ore.
Worboys Co., Inc., Wm. A., 15 Park Row, New York, N. Y.

BASKETS, DELIVERY

Acme Box Co., Auburn, Me.
American Box & Crate Co., Louisville, Ky.
Anderson Box & Basket Co., Henderson, Ky.
Backus, A., Jr., & Sons, Detroit, Mich.
Burlington Basket Co., Burlington, Ia.
Fibopak Co., Chicago, Ill.
Gereke-Allen Carton Co., St. Louis, Mo.
Lewis Co., Inc., G. B., Watertown, Wis.
Richardson Co., The, Lockland, O.
Unger-Commercial Co., The, Cleveland, O.

BILLS OF LADING
(Invoices, Shipping Forms, etc.)

American Sales Book Co., Elmira, N. Y.
Egry Register Co., Dayton, O.
Gilman Fanfold Co., Niagara Falls, N. Y.
Milwaukee Printing Co., Milwaukee, Wis.
Standard Register Co., Dayton, O.

BOARD, OILED

Bradley Stencil Machine Co., St. Louis, Mo.
Diagraph Stencil Machine Corp., St. Louis, Mo.
Marsh Stencil Machine Co., Belleville, Ill.

BOTTLES, BEVERAGE

Buck Glass Co., Baltimore, Md.
Chattanooga Glass Co., Chattanooga, Tenn.
Cunningham Glass Co., D. O., Pittsburgh, Pa.
Diamond Glass Co., Royersford, Pa.
Fairmont Glass Works, Indianapolis, Ind.
Glenshaw Glass Co., Glenshaw, Pa.
Hamilton Co., J. T. & A., Pittsburgh, Pa.
Hemingray Glass Co., Muncie, Ind.
Laurens Glass Works, Laurens, S. Car.
Owens-Illinois Glass Co., Toledo, O.—126–127
Reed Glass Co., F. E., Rochester, N. Y.
Root Glass Co., Terre Haute, Ind.
Salem Glass Works, Salem, N. J.
Whitall-Tatum Co., Millville, N. J.

BOTTLES, CELLULOID—ODORLESS

Hygienic Tube & Container Co., Newark, N. J.—125

BOTTLES, FANCY

Carr-Lowrey Glass Co., Baltimore, Md.
Foster-Forbes Glass Co., Marion, Ind.
General Glass Co., Lancaster, O.
Hamilton Co., J. T. & A., Pittsburgh, Pa.
Hazel-Atlas Glass Co., Wheeling, West Va.
Maryland Glass Corp., Baltimore, Md.
Owens-Illinois Glass Co., Toledo, O.—126–127
Swindell Brothers, Baltimore, Md.
Wheaton Co., T. C., Millville, N. J.
Whittall-Tatum Co., Millville, N. J.

BOTTLES, FOOD PACKING

Ball Bros., Muncie, Ind.
Capstan Glass Co., Connellsville, Pa.
Fairmont Glass Works, Indianapolis. Ind.
General Glass Co., Lancaster, O.
Glenshaw Glass Co., Glenshaw, Pa.
Hart Glass Mfg. Co., Dunkirk, Ind.
Hazel-Atlas Glass Co., Wheeling, West Va.
Maryland Glass Corp., Baltimore, Md.
Nivison-Weiskopf Co., Cincinnati, O.
Olean Glass Co., Olean, N. Y.
Owens-Illinois Glass Co., Toledo, O.—126–127
Reed Glass Co., F. E., Rochester, N. Y.
Salem Glass Works, Salem, N. J.
Tygart Valley Glass Co., Washington, Pa.

BOTTLES, MILK

Buck Glass Company, Baltimore, Md.
Hamilton Co., J. T. & A., Pittsburgh, Pa.
Knox Glass Bottle Co., Knox, Pa.
Lamb Glass Co., Mt. Vernon, O.
Liberty Glass Co., Sapulpa, Okla.
Owens-Illinois Glass Co., Toledo, O.—126–127
Reed Glass Co., F. E., Rochester, N. Y.
Thatcher Mfg. Co., Elmira, N. Y.
Three Rivers Glass Co., Three Rivers, Texas
Universal Glass Products Co., Parkersburg, West Va.

BOTTLES, PAPER

Lily Tulip Cup Corp., New York, N. Y.—180–181
Mono Service Co., Newark, N. J.
Purity Paper Vessels Co., The, Baltimore, Md.
Ritchie & Co., W. C., Chicago, Ill.
Sealright Co., Inc., Fulton, N. Y.
Smith-Lewis Fibre Can Corp., Lowville, N. Y.

BOTTLES, PROPRIETARY AND GENERAL

Brockway Machine Bottle Co., Brockway, Pa.
Carr-Lowrey Glass Co., Baltimore, Md.
Fairmont Glass Works, Indianapolis, Ind.
Foster-Forbes Glass Co., Marion, Ind.
Gayner Glass Works, Salem, N. J.
General Glass Co., Lancaster, O.
Hamilton Co., J. T. & A., Pittsburgh, Pa.
Hazel-Atlas Glass Co., Wheeling, West Va.
Knox Glass Bottle Co., Knox, Pa.
Maryland Glass Corp., Baltimore, Md.
Nivison-Weiskopf Co., Cincinnati, O.
Owens-Illinois Glass Co., Toledo, O.—126–127
Pennsylvania Glass Products Co., Pittsburgh, Pa.—206–207
Pierce Glass Co., Port Allegany, Pa.
Reed Glass Co., F. E., Rochester, N. Y.
Salem Glass Works, Salem, N. J.
Swindell Brothers, Baltimore, Md.
Three Rivers Glass Co., Three Rivers, Texas
Whitall-Tatum Co., Millville, N. J.

BOX BOARD, CLAY-COATED

American Coating Mills, Elkhart, Ind.
Container Corp. of America, Chicago, Ill.—124
Fort Orange Paper Co., Castleton-on-Hudson, N. Y.—183–184
Gair Co., Robert, New York, N. Y.
Kellogg Paper Products Co., Chicago, Ill.—160
Lowe Paper Co., Ridgefield, N. J.—Insert 200–201
United Paperboard Co., Inc., New York, N. Y.
Wabash Coating Mills, Wabash, Ind.

BOX BOARD, FOLDING

Alton Box Board & Paper Co., Alton, Ill.
American Coating Mills, Elkhart, Ind.
Artcote Papers, Inc., Irvington, N. J.—Insert 96–97
Cherry River Paper Co., Philadelphia, Pa.
Consolidated Paper Co., Monroe, Mich.—149
Container Corp. of America, Chicago, Ill.—124
Federal Paperboard Co., Inc., Bogota, N. J.
Fort Orange Paper Co., Castleton-on-Hudson, N. Y.—183–184
Gair Co., Robert, New York, N. Y.
Gardner & Harvey Co., Middleton, O.
Hinde & Dauch Paper Co., Sandusky, O.
Kellogg Paper Products Co., Chicago, Ill.—160
La Boiteaux Co., The, Cincinnati, O.
Lawless Bros. Paper Mills, East Rochester, N. Y.
Lowe Paper Co., Ridgefield, N. J.—Insert 200–201
Mac Sim Bar Paper Co., Otsego, Mich.
Marathon Paper Mills, Rothschild, Wis.
Mead Sales Co., Ltd., New York, N. Y.
Middlesex Products Co., Boston, Mass.—Insert 192–193
National Folding Box Co., New Haven, Conn.
National Metal Edge Box Co., Philadelphia, Pa.—165
Ohio Boxboard Co., Rittman, O.
Republic Paperboard Co., Cincinnati, O.
Richardson Co., Lockland, O.
Robertson Paper Box Co., Montville, Conn.
Schmidt & Ault Paper Co., York, Pa.
Sutherland Paper Co., Kalamazoo, Mich.
United Paperboard Co., Inc., New York, N. Y.

BOX BOARD, FOLDING, METALLIC COATED

Artcote Papers, Inc., Irvington, N. J.—Insert 96–97
Lowe Paper Co., Ridgefield, N. J.—Insert 200–201
McLaurin-Jones Co., Brookfield, Mass.
Middlesex Products Co., Boston, Mass.—Insert 192–193

BOARD, BOX SET-UP

Alton Box Board & Paper Co., Alton, Ill.
Butterfield-Barry Co., New York, N. Y.
Cherry River Paper Co., Philadelphia, Pa.
Consolidated Paper Co., Monroe, Mich.—149
Container Corp. of America, Chicago, Ill.—124
Continental Paper Co., Bogota, N. J.
Downingtown Paper Co., Downingtown, Pa.
Franklin Board & Paper Co., Franklin, O.
La Boiteaux Co., Cincinnati, O.
Lawless Bros. Paper Mills, East Rochester, N. Y.
McEwans & Sons, R. B., Whippany, N. J.

Buyers' Directory of the Packaging Industries

For information concerning equipment listed below, see catalog pages indicated by numbers appearing after advertisers' listings

Mac Sim Bar Paper Co., Otsego, Mich.
Mead Sales Co., Ltd., New York, N. Y.
Republic Paperboard Co., Cincinnati, O.
Richardson Co., The, Lockland, O.
Sutherland Paper Co., Kalamazoo, Mich.
United Paperboard Co., Inc., New York, N. Y.

BOXES, CELLULOID—ODORLESS

Hygienic Tube & Container Co., Newark, N. J.—125

BOXES, CORRUGATED (Solid Fibre)

Agar Manufacturing Corp., Whippany, N. J.
Albany Corrugated Container Corp., Albany, N. Y.
Ashtabula Corrugated Box Co., Ashtabula, O.
American Can Co., New York, N. Y.
American Corrugated Paper Products Corp., New York, N. Y.
American Corrugating Co., Grand Rapids, Mich.
Andrew Co., O. B., Chattanooga, Tenn.
Bird & Son, Inc., East Walpole, Mass.
Bliss Co., Inc., H. R., Niagrara Falls, N. Y.—129–136
Bogota Paper & Board Co., Bogota, N. J.
Brack Container Corp., Rochester, N. Y.
Carpenter Container Co., Brooklyn, N. Y.
Consolidated Paper Co., Monroe, Mich.—149
Container Corp. of America, Chicago, Ill.—124
Corning Fibre Box Corp., The, Corning, N. Y.
Corrugated Container Co., Philadelphia, Pa.
Corrugated Container Corp., Columbus, O.
Crescent Box Corp., Philadelphia, Pa.
Densen Corrugated Paper Co., Ridgefield Park, N. J.
Eggers-O'Flyng Co., Omaha, Neb.
Evans Fibre Box Co., Chicago, Ill.
Federal Container Co., Philadelphia, Pa.
Fort Wayne Corrugated Paper Co., Fort Wayne, Ind.
Gair Co., Robert, New York, N. Y.
Gardner & Harvey Co., The, Middletown, O.
Gaylord Container Company, Atlanta, Ga.
Gaylord, Inc., Robert, St. Louis, Mo.
General Fibre Box Co., Springfield, Mass.
Hercules Paper Box Co., Columbus, O.
Hinde & Dauch Paper Co., The, Sandusky, O.
Hummel & Downing Co., Milwaukee, Wis.
Hunt-Crawford Co., The, Coshocton, O.
Inland Box Corporation, Indianapolis, Ind.
Jackson Box Co., The, Cincinnati, O.
Kieckhefer Container Corp., Milwaukee, Wis.
Kress Box Co., F. J., Pittsburgh, Pa.
Mengel Company, Louisville, Ky.
Menasha Woodenware Co., Menasha, Wis.
Mid-West Box Co., Chicago, Ill.
National Container Corp., Long Island City, N. Y.
New Orleans Corrugated Box Co., Inc., New Orleans, La.
Nivison-Weiskopf Co., The, Cincinnati, O.
Ohio Boxboard Co., Cleveland, O.
Ottawa River Paper Co., Toledo, O.
Owens-Illinois Glass Co., Toledo, O.—126–127
Pa Pro Co., The, Glenfield, N. Y.
Paraffine Companies, The, Inc., San Francisco, Cal.
Richardson Co., The, Lockland, O.
River Raisin Paper Co., Monroe, Mich.
Rochester Folding Box Co., The, Rochester, N. Y.
Rockford Fibre Container Co., Rockford, Ill.
Schmidt Lithograph Co., San Francisco, Cal.
Schultz Co., A. Geo., Milwaukee, Wis.
Star Corrugated Box Co., Maspeth, L. I., N. Y.
Texas Corrugated Box Co., Dallas, Texas
Wabash Fibre Box Co., Terre Haute, Ind.
Waldorf Paper Products Co., St. Paul, Minn.
Warner Bros. Co., Bridgeport, Conn.—218–219
Weber & Co., David, Philadelphia, Pa.

BOXES, FANCY WOOD

Artwood Products Co., Terre Haute, Ind.
New England Box Co., Greenfield, Mass.
Pil'iod Cabinet Co., The, Swanton, O.—198
Warner Bros. Co., Bridgeport, Conn.—218–219

BOXES, FOLDING AND DISPLAY CARTONS

Ace Carton Corp., Chicago, Ill.
American Carton Co., Brooklyn, N. Y.
Atlantic Carton Corp., Norwich, Conn.
Brooks Bank Note Co., Springfield, Mass.
Brooks & Porter, Inc., New York, N. Y.—188
Brown & Bailey Co., Philadelphia, Pa.
Central Carton Corp., Brooklyn, N. Y.
Chicago Carton Co., Chicago, Ill.
Consolidated Paper Co., Monroe, Michigan—149
Container Corp. of America, Chicago, Ill.—124
Continental Folding Paper Box Co., Ridgefield, N. J.
Dennison Mfg. Co., Framingham, Mass.
Dodge Paper Box Co., E. F., Leominster, Mass.
Edwards & Deutsch Lithographing Co., Chicago, Ill.
Einson-Freeman Co., Inc., Long Island City, N. Y.—141
Forbes Litho. Mfg. Co., Boston, Mass.—151–155
Fort Orange Paper Co., Castleton-on-Hudson, N. Y.—183–184
Fort Wayne Paper Goods Co., Fort Wayne, Ind.
Gair Co., Robert, New York, N. Y.
Gardner & Harvey Co., Middleton, O.
Gebhart Folding Box Co., Dayton, O.
Gereke-Allen Carton Co., St. Louis, Mo.
Howell & Co., F. M., Elmira, N. Y.
Hummel & Downing Co., Milwaukee, Wis.
International Folding Paper Box Co., North Bergen, N. J.
International Printing Co., Indianapolis, Ind.
Interstate Folding Box Co., Middletown, O.
Karle Lithographic Co., Rochester, N. Y.
Lord Baltimore Press, Baltimore, Md.
Lowe Paper Co., Ridgefield, N. J.—Insert 200–201
Menasha Products Co., Menasha, Wis.
Milprint Products Corp., Milwaukee, Wis.—Insert 256–257
Milwaukee Paper Box Co., The, Milwaukee, Wis.
Morris Paper Mills, Chicago, Ill.
Myers, Inc., J. & P. B., Brooklyn, N. Y.
National Carton Co., Joliet, Ill.
National Folding Box Co., New Haven, Conn.
National Metal Edge Box Co., Philadelphia, Pa.—165
Randolph Box & Label Co., Chicago, Ill.
Richardson Co., Lockland, O.
Richardson-Taylor-Globe Corp., Cincinnati, O.—204
Robertson Paper Box Co., Inc., Montville, Conn.
Rochester Folding Box Co., Rochester, N. Y.
Rossetti Lithographing Co., New York, N. Y.
Sample-Durick Co., Springfield, Mass.
Schultz Co., A. Geo., Milwaukee, Wis.
Shoup-Owens Co., Hoboken, N. J.
Shuttleworth Carton Co., Inc., New York, N. Y.
Sutherland Paper Co., Kalamazoo, Mich.
Trenton Folding Box Co., Trenton, N. J.
Universal Folding Box Co., Brooklyn, N. Y.
U. S. Printing & Litho. Co., Cincinnati, O.—262
Warner Bros. Co., Bridgeport, Conn.—218–219

BOXES, MAILING

Ace Carton Corp., Chicago, Ill.
Brown & Bailey, Philadelphia, Pa.
Cambridge Paper Box Co., Cambridge, Mass.—112
Chicago Carton Co., Chicago, Ill.
Cincinnati Mailing Device Co., The, Cincinnati, O.—119
Cleveland Container Co., Cleveland, O.—117
Consolidated Paper Co., Monroe, Mich.—149
Container Corp. of America, Chicago, Ill.—124
Dodge Paper Box Co., E. F., Leominster, Mass.
Fort Orange Paper Co., Castleton-on-Hudson, N. Y.—183–184
Fort Wayne Paper Goods Co., Fort Wayne, Ind.
Gair Co., Robert, New York, N. Y.
Gardner & Harvey Company, The, Middletown, O.
Gebhart Folding Box Co., Dayton, O.
Gereke-Allen Carton Co., St. Louis, Mo.
Hercules Paper Box Co., Columbus, O.
Hinde & Dauch Paper Co., The, Sandusky, O.
Illinois Carton & Label Co., Chicago, Ill.
International Printing Co., Indianapolis, Ind.
Interstate Folding Box Co., Middletown, O.
Lord Baltimore Press, Baltimore, Md.
Mason Box Co., The, Attleboro Falls, Mass.—Insert 120–121
Molitor Box Company, Milwaukee, Wis.
Monarch Nusbaum Paper Box Co., Inc., Buffalo, N. Y.
National Metal Edge Box Co., Philadelphia, Pa.—165
Owens-Illinois Glass Co., Toledo, O.—126–127
Richardson-Taylor-Globe Corp., Cincinnati, O.—204
Ritchie & Co., W. C., Chicago, Ill.
Sample-Durick Co., Springfield, Mass.
Schultz Co., A. Geo., Milwaukee, Wis.
Shuttleworth Carton Co., Inc., New York, N. Y.
Sears Paper Box Co., Merle, Danville, Ill.
Seeley Tube and Box Co., Newark, N. J.—269
Shoup Owens Co., Hoboken, N. J.
Trenton Folding Box Co., Trenton, N. J.
U. S. Printing & Litho. Co., Cincinnati, O.—262
Warner Bros. Co., Inc., Bridgeport, Conn.—218–219
Young Bros., Providence, R. I.—267

BOXES, METAL

American Can Co., New York, N. Y.
Burdick & Son, Albany, N. Y.—182
Chase Brass & Copper Co., Waterbury, Conn.
Consolidated Safety Pin Co., Bloomfield, N. J.—120
Continental Can Co., Inc., New York, N. Y.—Insert 110–111
Goertz & Co., Al., Newark, N. J.
Heekin Can Co., Cincinnati, O.
Metal Package Corp., New York, N. Y.—173
Scovill Manufacturing Co., Waterbury, Conn.
Tin Decorating Co. of Baltimore, The, Baltimore, Md.—254

BOXES, MOLDED (Plastic)

Allen & Hills, Inc., Auburn, N. Y.—97
American Insulator Co., New Freedom, Pa.
American Record Corp., Scranton, Pa.
Auburn Button Works, Inc., Auburn, N. Y.—105
Bakelite Corp., New York, N. Y.—118
Boonton Molding Co., Boonton, N. J.
Celluloid Corp., New York, N. Y.
Chicago Molded Products Corp., Chicago, Ill.
Colt's Patent Fire Arms Mfg. Co., Hartford, Conn.—156–157
Columbia Phonograph Co., Bridgeport, Conn.
Diemolding Corp., Canastota, N. Y.
General Plastics, Inc., North Tonawanda, N. Y.—122–123
Hygienic Tube & Container Co., Newark, N. J.—125
Kurz-Kasch Co., Dayton, O.
Mack Molding Co., Wayne, N. J.
Northern Industrial Chemical Co., Boston, Mass.—169
Norton Laboratories, Inc., Lockport, N. Y.—189–192
Shaw Insulator Co., Irvington, N. J.
Warner Bros. Co., Bridgeport, Conn.—218–219
Waterbury Button Co., The, Waterbury, Conn.—263

BOXES, PAPER SET-UP

Letters indicate general class of boxes manufactured:
A—Covering Machine-made Boxes.
B—Automatic Machine-made Boxes.
C—Hand-made Boxes.
D—Hand-made and Machine-made Boxes.
g.l.—Indicates manufacture of general line of boxes in the class specified, except certain types which are specialties or specialized in, such as Candy, Holiday, Face Powder, Perfumery, Carbon Paper, Jewelry, Cases and Shelf Boxes, Hinged Lid and Display, Slide Boxes, Cigarette Boxes, Mailing Boxes and special small boxes. These are indicated by name.

Alderman Paper Box Co., Rochester, N. Y.
A, B, C and D, g.l.
American Paper Box Co., Saginaw, Mich.
A, C and D, g.l.
Arrow Mfg. Co., Inc., Hoboken, N. J.—102
C, Jewelry, Specialties, g.l.
Atlas Paper Box Co., Chattanooga, Tenn.
A and B, g.l.
Bisler, Inc., G. A., Philadelphia, Pa.
A, B, C and D, candy and holiday
Box Craft Co., Cambridge, Mass.
A, B, C and D
Bristol Paper Box Co., Bristol, Va.
A, g.l.
Buedingen Co., Inc., Ferdinand, Rochester, N. Y.
A, C and D, g.l.
Buffington Co., F. H., Providence, R. I.
A, g.l.
Burt Co., Ltd., F. N., Buffalo, N. Y.
A, B, C and D, face powder, perfumery, pill and drug, slide boxes, cigarette boxes
Cambridge Paper Box Co., Cambridge, Mass.—112
A, B, C, D, g.l. and drug
Casselman, Inc., T. and E., New York, N. Y.
A, B, C and D, g.l.
Danbury Square Box Co., The, Danbury, Conn.
A, C and D, g.l.
Dennison Mfg. Co., Framingham, Mass.
D
Dodge Paper Box Co., E. F., Leominster, Mass.
Doolittle Co., The E. J., Meriden, Conn.
A, C and D, g.l.
Eagle Paper Box Co., Detroit, Mich.
A, C and D, g.l.
Excelsior Paper Box Factory, St. Louis, Mo.
A, B, C and D, g.l.
Fairchild Corp., E. E., Rochester, N. Y.
A, B, C and D, g.l.
Fisher Paper Box Co., Inc., Minneapolis, Minn.
A, B, C and D, g.l.
Fleisig, Inc., H., New York, N. Y.
Fort Wayne Paper Box Co., Fort Wayne, Ind.
A, B, C and D, g.l.

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Buyers' Directory of the Packaging Industries

For information concerning equipment listed below, see catalog pages indicated by numbers appearing after advertisers' listings

Grand Rapids Paper Box Co., Grand Rapids, Mich.
A, B, C and D, g.l.
Great Western Paper Box Co., St. Louis, Mo.
A, B, C and D, g.l.
Harrisburg Paper Box Co., Harrisburg, Pa.
A, B, C and D, g.l.
Hatch Co., C. F., Lowell, Mass.
A, B, C and D, g.l.
Henry Co., Ira L., Watertown, Wis.
A, C and D, g.l.
Hollywood Paper Box Corp., Hollywood, Cal.
A, B and D, g.l.
Holman Paper Box Co., St. Louis, Mo.
A, B and D, g.l.
Howell & Co., F. M., Elmira, N. Y.
A, B and D, g.l.
Illinois Paper Box Co., Chicago, Ill.
A, C and D, g.l.
Jones Paper Box Co., Jesse, Philadelphia, Pa.
A, B, C and D, g.l.
Kalamazoo Paper Box Co., Kalamazoo, Mich.
A, B, C and D, g.l.
Kentucky Paper Box Co., Inc., Louisville, Ky.
A, B, C and D, g.l.
Keystone Box Co., Pittsburgh, Pa.
A, B, C and D, g.l.
Killian Co., George P., Washington D. C.
A, B, C and D, g.l.
Kroeck Paper Box Co., Chicago, Ill.
A, g.l
Lebanon Paper Box Co., Lebanon, Pa.
A, B, C and D, g.l.
Lorscheider Schang Co., Rochester, N. Y.
A, B, C and D, g.l.
Mason Box Co., The, Attleboro Falls, Mass.—Insert 120–121
A, B, C and D, g.l.
Miller, W. P., Inc., Philadelphia, Pa.
A, B, C and D, g.l.
Milwaukee Paper Box Co., The, Milwaukee, Wis.
Molitor Box Co., Milwaukee, Wis.
A, B, C and D, g.l.
National Metal Edge Box Co., Philadelphia, Pa.—165
B, D, g.l.
Neumann Co., The Robert, Cincinnati, Ohio
A, C and D, g.l.
Norristown Box Co., Norristown, Pa.
A and B, g.l.
Ohio Boxboard Co., Cleveland, Ohio
A, B, C and D, g.l.
Paper Package Co., Indianapolis, Ind.
A, B, C and D, g.l.
Pearson Paper Box Co., Kansas City, Mo.
A, C and D, g.l.
Perfumers & Jewelers Box Co., New York, N. Y.
A, B, C and g.l.
Pharmacy Paper Box Co., Chicago, Ill.
A, B and C
Pictorial Paper Package Co., Aurora, Ill.
A, B, C and D, g.l.
Plumly, E. K., Philadelphia, Pa.
D, g.l., Perfume
Randolph Paper Box Co., Richmond, Va.
A, B and D, g.l.
Ritchie & Co., W. C., Chicago, Ill.
A, B, C and D, g.l.
Rowell Co., Inc., E. N., Batavia, N. Y.
A, B and D. g.l.
Rubin, Jas. & Sons, Inc., Brooklyn, N. Y.
A, B and g.l.
Schleicher Paper Box Co., F. J., St. Louis, Mo.
B, C and D, candy
Schoettle Co., Edwin J., Philadelphia, Pa.
A, B, C and D, g.l.
Schultz and Co., H., Chicago, Ill.
A, B, C and D, g.l.
Schultz Co., A. Geo., Milwaukee, Wis.
A, B, C and D, g.l.
Sears Paper Box Co., Merle, Danville, Ill.
A, B, C and D, g.l.
Seeley Tube and Box Co., Newark, N. J.—269
A, B and D, g.l.
Shoup-Owens Co., Hoboken, N. J.
B and g.l.
Spitzer Paper Box Co., Toledo, Ohio
A, B
Star Case Co., New York, N. Y.
C, jewelry, specialties
Trum, Inc., E. J., Brooklyn, N. Y.
A and D, g.l.
Voss Corp., Karl, Hoboken, N. J.—257–260
Face powder, perfumery, g.l.
Waldeck & Co., Jersey City, N. J.
A, B, C and D, g.l.
Warner Bros. Co., Bridgeport, Conn.—218–219
A, B, C and D
Waterbury Paper Box Co., Waterbury, Conn.—264
A, B, C and D, g.l.
Young Bros., Providence, R. I.—267
A, B, C and D, g.l.
Youse, C. J., Co., Baltimore, Md.
A, B, C and D, candy

BOXES, WINDOW

Brooks & Porter, Inc., New York, N. Y.—188
Fort Orange Paper Co., Castleton-on-Hudson, N.Y.—183–184
Milprint Products Corp., Milwaukee, Wis.—Insert 256–257
Warner Bros. Co., Bridgeport, Conn.—218–219

BOX LACES

American Lace Paper Co., Milwaukee, Wis.
Milwaukee Lace Paper Co., Milwaukee, Wis.
U. S. Lace Paper Works, Brooklyn, N. Y.

BOX REINFORCEMENT (Strapping-Wire)

Acme Steel Co., Chicago, Ill.—96
American Steel & Wire Co., Chicago, Ill.
Gerrard Co., Inc., Chicago, Ill.
Parker Machine Works, Riverside, Cal.
Seneca Wire & Mfg. Co., Fostoria, O.
Signode Steel Strapping Co., Chicago, Ill.
Stanley Works, New Britain, Conn.
Tennant Sons & Co., C., New York, N. Y.

BOX RIBBONS (Ties, Tinsel, etc.)

Chicago Printed String Co., Chicago, Ill.
Freydberg Bros., New York, N. Y.
Hy-Sil Mfg. Co., Revere, Mass.
Levine Co., M. H., New York, N. Y.
Taft Co., R. C., Chicago, Ill.

BOX SHOOKS, VENEER AND PLYWOOD

Atlas Plywood Corp., Boston, Mass.
Chicago Mill & Lumber Co., Chicago, Ill.
General Box Co., Chicago, Ill.
National Box Co., Chicago, Ill.
New England Box Co., The, Greenfield, Mass.
Northwestern Cooperage & Lumber Co., Gladstone, Mich.
Owens-Illinois Glass Co., Toledo, O.—126–127
Rathbone, Hair & Ridgway Co., Chicago, Ill.
Tifft Bros., New York, N.Y.

BOX SHOOKS, WOODEN BOXES

Acme Box Co., Chicago, Ill.
Anderson Tully Co., Memphis, Tenn.
Baker Box Co., Worcester, Mass.
Bemidji Wood Products Co., Bemidji, Minn.
Boulia-Gorrell Lumber Co., Lakeport, N. H.
Breece Lumber Co., The Geo. E., Albuquerque, N. Mex.
California Redwood Box Co., Oakland, Cal.
Chapman & Dewey Lumber Co., Memphis, Tenn.
Chaffee Brothers Co., Oxford, Mass.
Chicago Mill & Lumber Co., Chicago, Ill.
Dunning Corp., J. H., New York, N. Y.
Dodge & Bliss Co., Jersey City, N. J.
Fandango Box Co., Willow Ranch, Cal.
General Box Co., Chicago, Ill.
Gottlieb, Inc., S. L., Manville, N. J.
Gondert & Lienesch, Dayton, O.
Goessling Box Co., Wm. F., St. Louis, Mo.
Kansas City Shook & Mfg. Co., Wilson, Ark.
Kurz Bros., Helena, Ark.
Lange & Crist Box & Lumber Co., Clarksburg, W. Va.
Linderman Box & Veneer Co., Eau Claire, Wis.
Long Bell Lumber Sales Corp., Weed, Cal.
Loy-Lange Box Co., St. Louis, Mo.
National Box Co., Chicago, Ill.
New England Box Co., The, Greenfield, Mass.
Omaha Box Co., Omaha, Neb.
Owens-Illinois Glass Co., Toledo, O.—126–127
Queen City Box Co., Cincinnati, O.
Rathbone, Hair & Ridgway Co., Chicago, Ill.
Republic Box Co., Chicago, Ill.
Richards Shook Corp., New York, N. Y.
Rittler Box Co., Baltimore, Md.
Spruce Veneer Package Corp., Puyallup, Wash.
Star Box & Lumber Co., New York, N. Y.
St. Croix Box Mfg. Co., Bayport, Minn.
St. Croix Lumber Co., Boston, Mass.
Sterling Box Co., St. Louis, Mo.
Thornton Lumber Co., E. A., Chicago, Ill.
United Box Mfg. Co., Kansas City, Mo.
Villaume Box & Lumber Co., St. Paul, Minn.
Wausau Box & Lumber Co., Wausau, Wis.
Weyerhauser Forest Products, St. Paul, Minn.
Whitmore & Knight, Philadelphia, Pa.
Wilson-Cahill Box Co., Spokane, Wash.
Wilson & Sons Co., Geo., Toledo, O.
Wisconsin-Michigan Lumber Co., Wagle River, Wis.
Zenith Box & Lumber Co., Duluth, Minn.

BOX TOP PADDING

American Lace Paper Co., Milwaukee, Wis.
International Paper Co., New York, N. Y.
Kimberly-Clark Corp., Neenah, Wis.—196–197
Milwaukee Lace Paper Co., Milwaukee, Wis.
Union Wadding Co., Pawtucket, R. I.

BOX WRAPS

See Lithographers and various paper headings

CADDIES, CRACKER (Moisture-proof and Greaseproof)

Bliss Co., Inc., H. R., Niagara Falls, N. Y.—129–136
Chicago Carton Co., Chicago, Ill.
Consolidated Paper Co., Monroe, Mich.—149
Container Corp. of America, Chicago, Ill.—124
Gair Co., Robert, New York, N. Y.
Gaylord Co., Robert, St. Louis, Mo.
Hinde & Dauch Paper Co., Sandusky, Ohio
Hummel & Downing Co., Milwaukee, Wis.
International Printing Co., Indianapolis, Ind.
National Metal Edge Box Co., Philadelphia, Pa.—165
River Raisin Paper Co., Monroe, Mich.
Rochester Folding Box Co., Rochester, N. Y.
Sefton National Fibre Can Co., St. Louis, Mo.—208

CANS, FIBRE

American Can Co., New York, N. Y.
Cambridge Paper Box Co., Cambridge, Mass.—112
Canister Co., The, Phillipsburg, N. J.
Cincinnati Mailing Device Co., The, Cincinnati, Ohio—119
Cleveland Container Co., Cleveland, Ohio—117
Marathon Paper Mills Co., Rothschild, Wis.
Menasha Products Co., Menasha, Wis.
Molitor Box Co., Milwaukee, Wis.
National Paper Can Co., Milwaukee, Wis.
Paper Canister Co., Philadelphia, Pa.
R. C. Can Company, St. Louis, Mo.—201
Ritchie & Co., W. C., Chicago, Ill.
Rowell & Co., Inc., E. N., Batavia, N. Y.
Seeley Tube and Box Co., Newark, N. J.—269
Sefton National Fibre Can Co., St. Louis, Mo.—208

CANS, TIN (Plain and Decorated)

Acme Can Co., Philadelphia, Pa.
American Can Co., New York, N. Y.
Burdick & Son Inc., Albany, N. Y.—182
Clark Mfg. Co., J. L., Rockford, Ill.
Columbia Can Co., St. Louis, Mo.
Consolidated Safety Pin Co., Bloomfield, N. J.—120
Continental Can Co., New York, N. Y.—Insert 110–111
Giles Can Co., Chicago, Ill.
Heekin Can Co., Cincinnati, O.
Mason Mfg. Co., Providence, R. I.
Metal Package Corp., New York, N. Y.—173
National Can Co., Boston, Mass.
Robertson Steel & Iron Co., W. F., Springfield, O.
Sexton Can Co., Boston, Mass.
Tin Decorating Co. of Baltimore, The, Baltimore, Md.—254
Wilkes-Barre Can Co., Wilkes-Barre, Pa.

CANS, TRANSPARENT

Hygienic Tube & Container Co., Newark, N. J.—125
Silcocks Miller Co., S. Orange, N. J.

CAP LINERS

See Liners, Cap

CAPS, CROWN

Armstrong Cork Co., Lancaster, Pa.—103
Bamberger, Krause & Co., Pittsburgh, Pa.
Bond Manufacturing Corp., Wilmington, Del.—108
Consolidated Cork Corp., Brooklyn, N. Y.
Crown Cap Manufacturing Co., Brooklyn, N. Y.
Crown Cork and Seal Co., Baltimore, Md.—158–159
W. H. Hutchinson & Son, Chicago, Ill.
Illinois Cork Co., Chicago, Ill.
Mundett & Son, L., Brooklyn, N. Y.
Western Stopper Co., San Francisco, Cal.

CAPS, METAL (Bottle and Jar)

Aluminum Co. of America, Pittsburgh, Pa.

Buyers' Directory of the Packaging Industries

For information concerning equipment listed below, see catalog pages indicated by numbers appearing after advertisers' listings

Anchor Cap & Closure Corp., Long Island City, N. Y.
Armstrong Cork Co., Lancaster, Pa.—103
Aridor Co., Chicago, Ill.
Bond Mfg. Co., Wilmington, Del.—108
Bridgeport Metal Goods Co., Bridgeport, Conn.
Closure Service Co., Toledo, O.
Consolidated Packaging Machinery Corp., Buffalo, N. Y.—187
Consolidated Safety Pin Co., Bloomfield, N. J.—120
Crown Cork & Seal Co., Inc., Baltimore, Md.—158–159
Empire Metal Cap Co., Brooklyn, N. Y.
Gutmann & Co., Ferdinand, Brooklyn, N. Y.
Hazel-Atlas Glass Co., Wheeling, W. Va.
National Seal Co., Brooklyn, N. Y.
Owens-Illinois Glass Co., Toledo, O.—126–127
Phoenix-Hermetic Co., Chicago, Ill.
Re-Seal-It Metal Cap Corp., New York, N. Y.
Scovill Manufacturing Co., Waterbury, Conn.
Sterling, A. J., New York, N. Y.
Tin Decorating Co. of Baltimore, The, Baltimore, Md.—254
Truslow & Tulle, Inc., Brooklyn, N. Y.
White Cap Co., Chicago, Ill.
Williams Sealing Corp., Decatur, Ill.

CAPS, MOLDED (Bottle, Jar and Tube)

Allen & Hills, Inc., Auburn, N. Y.—97
Anchor Cap & Closure Co., Long Island City, N. Y.
Armstrong Cork Co., Lancaster, Pa.—103
Aridor Co., Chicago, Ill.
Auburn Button Works, Inc., Auburn, N. Y.—105
Bakelite Corp., New York, N. Y.—118
Boonton Molding Co., Boonton, N. J.
Chicago Molded Products Corp., Chicago, Ill.
Closure Service Co., Toledo, O.
Colt's Patent Fire Arms Mfg. Co., Hartford, Conn.—156–157
Consolidated Packaging Machinery Corp., Buffalo, N. Y.—187
General Plastics, Inc., N. Tonawanda, N. Y.—122–123
Kurz-Kasch Co., The, Dayton, O.
Mack Molding Co., Little Falls, N. J.
Northern Industrial Chemical Co., Boston, Mass.—169
Norton Laboratories, Inc., Lockport, N. Y.—189–192
Plaskon Industries, Toledo, O.
Synthetic Plastics, Inc., New York, N. Y.
Waterbury Button Co., Waterbury, Conn.—263

CAPS, PAPER

Cincinnati Mailing Device Co., The, Cincinnati, O.—119
Cleveland Container Co., The, Cleveland, O.—117
R. C. Can Co., St. Louis, Mo.—201
Sayford Paper Specialty Co., Vineland, N. J.
Sefton National Fibre Can Co., St. Louis, Mo.—208

CAPS, VISCOSE, CELLULOSE

Armstrong Cork Company, Lancaster, Pa.—103
Celon Co., Madison, Wis.
Du Pont Cellophane Co., Cap-Viscose Division, New York, N. Y.
Parke-Davis Co., Detroit, Mich.

CARTON LINERS

Central Waxed Paper Co., Chicago, Ill.
Du Pont Cellophane Co., New York, N. Y.
Hamersley Mfg. Co., Garfield, N. J.
Hartford City Paper Co., Hartford City, Ind.
Henle Wax Paper Mfg. Co., Inc., The, New York, N. Y.
Kalamazoo Vegetable Parchment Co., Kalamazoo, Mich.—150
Kellogg Paper Products Co., Chicago, Ill.—160
Marathon Paper Mills, Rothschild, Wis.
McDowell Paper Mills, Philadelphia, Pa.
Menasha Products Co., Menasha, Wis.
Nashua Gummed & Coated Paper Co., Nashua, N. H.—Insert 252–253
Newark Paraffine & Parchment Paper Co., Newark, N. J.
Owens-Illinois Glass Co., Toledo, O.—126–127
Package Paper Co., Holyoke, Mass.
Paterson Parchment Paper Co., Passaic, N. J.—176
Reynolds Metals Co., New York, N. Y.
Rhinelander Paper Co., Rhinelander, Wis.
Riegel Paper Corp., New York, N. Y.—Insert 164–165
Specialty Paper Co., The, Dayton, O.
Sutherland Paper Co., Kalamazoo, Mich.
Sylvania Industrial Corp., New York, N. Y.—Insert 260–261
Union Bag & Paper Co., New York, N. Y.—266
West Carrollton Parchment Co., West Carrollton, O.
Westfield River Paper Co., Russell, Mass.—Insert 172–173

CARTONS

See Boxes, Folding and Display

CARTONS, PARAFFINED

Atlantic Carton Corp., Norwich, Conn.
Bloomer Bros. Co., Newark, N. J.
Butler Paper Products Co., Toledo, O.
Chicago Carton Co., Chicago, Ill.
Fort Orange Paper Co., Castleton-on-Hudson, N. Y.—183–184
Gair Co., Robert, New York, N. Y.
Gereke-Allen Co., St. Louis, Mo.
Hummel & Downing Co., Milwaukee, Wis.
Menasha Products Co., Menasha, Wis.
Michigan Carton Co., Battle Creek, Mich.
Morris Paper Mills, Chicago, Ill.
National Carton Co., Joliet, Ill.
Richardson-Taylor-Globe Corp., Cincinnati, O.—204
Shuttleworth Carton Co., Inc., New York, N. Y.
Sutherland Paper Co., Kalamazoo, Mich.

CASE LINERS

Angier Corp., Framingham, Mass.
Brown Co., Portland, Me.
Central Paper Co., Muskegon, Mich.
Edgewater Paper Co., Menasha, Wis.
International Paper Co., New York, N. Y.
Rexford Paper Co., Milwaukee, Wis.
Reynolds Metals Co., New York, N. Y.
Sisalcraft Co., Chicago, Ill.

CASES, SAMPLE

Arrow Mfg. Co., Hoboken, N. J.—102
Mason Box Co., Attleboro Falls, Mass.—Insert 120–121
Sperling, E., New York, N. Y.
Star Case Co., New York, N. Y.
Voss Corp., Karl, Hoboken, N. J.—257–260

CELLULOID

Auburn Button Works, Inc., Auburn, N. Y.—105
Celluloid Corp., New York, N. Y.
Hygienic Tube & Container Co., Newark, N. J.—125

CELLULOSE, SHREDDED

Pioneer Paper Stock Company—200

CELLULOSE, TRANSPARENT (Converters and Printers)

Birge & Sons Co., M. H., Buffalo, N. Y.—Insert 108–109, Page 109
Caton Printing Co., Kansas City, Mo.
Daniels Mfg. Co., Rhinelander, Wis.
Datz Co., A. S., Philadelphia, Pa.
Dobeckmun Co., The, Cleveland, O.—Insert 102–103
Forbes Litho. Mfg. Co., Boston, Mass.—151–155
Liebs Co., Inc., L. A., New York, N. Y.
Little Co., John W., Pawtucket, R. I.—172
Marvellum Co., The, Holyoke, Mass.—Insert 198–199
Milprint Products Corp., Milwaukee, Wis.—Insert 256–257
Milwaukee Printing Co., Milwaukee, Wis.
Package Paper Co., Holyoke, Mass.
Shellmar Products Co., Chicago, Ill.
Transparent Cellulose Printing Corp., Pawtucket, R. I.
Transparent Packaging & Printing Co., New York, N. Y.
Travers Paper & Mfg. Co., Chicago, Ill.

CELLULOSE, TRANSPARENT (Moisture-proof and Greaseproof)

American Products Mfg. Co., New Orleans, La.
Celluloid Corp., New York, N. Y.
Du Pont Cellophane Co., New York, N. Y.
Eastman Kodak Co., Rochester, N. Y.
Sylvania Industrial Corp., New York, N. Y.—Insert 260–261

CHIPBOARD

Butterfield-Barry Co., New York, N. Y.
Consolidated Paper Co., Monroe, Mich.—149
Container Corp. of America, Chicago, Ill.—124
Federal Paper Board Co., Inc., Bogota, N. J.
Gair Co., Robert, New York, N. Y.
Kellogg Paper Products Co., Chicago, Ill.—160
Kieckhefer Container Corp., Milwaukee, Wis.
La Boiteaux Co., Cincinnati, O.
Mead Sales Co., Ltd., New York, N. Y.
Richardson Co., Lockland, O.
Riegel Paper Corp., New York, N. Y.—Insert 154–165
River Raisin Paper Co., Monroe, Mich.
Schmidt & Ault Paper Co., York, Pa.
United Paperboard Co., New York, N. Y.

CLOTH, LACQUERED

Athol Mfg. Co., Athol, Mass.
Carpenter Co., L. E., Newark, N. J.
Du Pont Fabrikoid Co., Newburgh, N. Y.
Griffin & Sons Co., H., New York, N. Y.
Holliston Mills, Inc., The, Norwood, Mass.
Keratol Co., Newark, N. J.—171
Peerless Roll Leaf Co., Union City, N. J.—Insert 146–147, Page 146
Permatex Fabrics, Inc., Jewett City, Conn.
Whiting Co., Inc., C. R., Newark, N. J.—220
Zapon Co., Hartford, Conn.

CLOTH, VELOUR

Holliston Mills, Inc., The, Norwood, Mass.

COMPACTS, FANCY METAL CONTAINERS

American Perfumers Labs., New York, N. Y.
Brass Goods Mfg. Co., Brooklyn, N. Y.
Bridgeport Metal Goods Mfg. Co., Bridgeport, Conn.
Consolidated Safety Pin Co., Bloomfield, N. J.—120
Goertz Co., Inc., August, Newark, N. J.
Kolmar Laboratories, Newark, N. J.
Majestic Metal Specialties, Inc., New York, N. Y.
Sagamor Metal Goods Corp., New York, N. Y.
Scovill Mfg. Co., Waterbury, Conn.

CONTAINERS, MOLDED PULP (for Bottles, Jars, etc.)

Burt Co., F. N., Buffalo, N. Y.
Holed-Tite Packing Corp., New York, N. Y.
International Paper Box Machine Co., Nashua, N. H.
Owens-Illinois Glass Co., Toledo, O.—126–127

CONTAINERS

See Various Box Headings

CONTAINERS, PAPER NESTING, WAXED AND UNWAXED

Lily Tulip Cup Corp., New York, N. Y.—180–181
Mono Service Co., Newark, N. J.

CONTAINERS, SULPHITE CYLINDRICAL

Lily Tulip Cup Corp., New York, N. Y.—180–181
Purity Paper Vessels Co., The, Baltimore, Md.
Ritchie & Co., W. C., Chicago, Ill.
Sealright Co., Fulton, N. Y.
Smith-Lewis Fibre Can Corp., Lowville, N. Y.

CONTAINERS, SULPHITE NESTING

Lily Tulip Cup Corp., New York, N. Y.—180–181
Mono Service Co., Newark, N. J.

CONVEYORS

Acme Steel Co., Chicago, Ill.—96
Alvey-Ferguson Co., Cincinnati, O.
Cambridge Wire Cloth Co., The, Cambridge, Md.
Chain Belt Co., Milwaukee, Wis.
Colton Co., Arthur, Detroit, Mich.—121
Dodge Mfg. Co., Mishawaka, Ind.
Gifford-Wood Co., Hudson, N. Y.
Jeffrey Mfg. Co., Columbus, O.
Kiefer Machine Co., The Karl, Cincinnati, O.
Lamson Co., Syracuse, N. Y.
Link-Belt Co., Chicago, Ill.
Logan Co., Louisville, Ky.
Mathews Conveyor Co., Ellwood City, Pa.

XUM

Buyers' Directory of the Packaging Industries

For information concerning equipment listed below see, catalog pages indicated by numbers appearing after advertisers' listings

Sandvik Conveyor Mfg. Co., Inc., Newark, N. J.
Standard Conveyor Co., N. St. Paul, Minn.
Stokes Machine Co., F. J., Philadelphia, Pa.—253
U. S. Bottlers' Machinery Co., Chicago, Ill.
Webster Mfg. Co., Chicago, Ill.

CORKS

American Cork Co., Boston, Mass.
Armstrong Cork Co., Lancaster, Pa., 103
Cork Import Corporation, New York, N. Y.
International Cork Co., Brooklyn, N. Y.
Owens-Illinois Glass Co., Toledo, O.—126-127
Truslaw & Fulle, Brooklyn, N. Y.

COUNTER DISPLAY

See Boxes, Folding Display Cartons
See Boxes, Molded Plastics
See Lithographers

CREPE WADDING

International Paper Co., New York, N. Y.
Kimberly-Clark Corp., Chicago, Ill.—196-197
Rochester Folding Box Co., Rochester, N. Y.

DISPLAY RACKS, METAL

American Can Co., New York, N. Y.
Continental Can Co., New York, N. Y.—Insert 110-111
Sommer Bros. Appliance Co., Saginaw, Mich.
Tin Decorating Co. of Baltimore, The, Baltimore, Md.—254
Union Steel Products Co., Albion, Mich.

DROPPERS, BOTTLE, MEDICINAL

Pennsylvania Glass Products Co., Pittsburgh, Pa.—206-207
Spring Stopper Co., New York, N. Y.

DRUMS, FIBRE

Arvey Mfg. Co., Chicago, Ill.
Buffalo Carpenter Container Co., Inc., Buffalo, N. Y.
Carpenter Container Corp., Brooklyn, N. Y.
Champion Container Co., Philadelphia, Pa.
Container Co., The, Van Wert, O.
Emery Carpenter Container Co., Chicago, Ill.
Master Package Corp., Owen, Wis.
Philadelphia Carpenter Container Co., Inc., Philadelphia, Pa.
Richardson Co., The, Lockland, O.

ENVELOPES

See Various Bag Listings

ENVELOPE LININGS

See Papers, Fancy Tissue Wrapping

EXCELSIOR, PADS

Boston Excelsior Co., New York, N. Y.
Excelsior Wrapper Co., Chicago, Ill.
Pioneer Paper Stock Co., Chicago, Ill.—200
Quincy North Star Co., Quincy, Ill.
Selle & Co., H. W., Chicago, Ill.

EXCELSIOR, PAPER

Crystal Tissue Co., Middletown, O.
Paterson Parchment Paper Co., Passaic, N. J.—176
Pioneer Paper Stock Co., Chicago, Ill.—200

FOIL, ALUMINUM, TIN, LEAD AND COMPOSITION

Aluminum Co. or America, Pittsburgh, Pa.
Hirst Co., Adolphe, New York, N. Y.
Kupfer Bros. Co., New York, N. Y—Insert 168-169
Lehmaier & Schwartz, New York, N. Y.
Pauli Corp., Karl, New York, N. Y.
Reynolds Metals Co., New York, N. Y.

FOLDING BOXES

See Boxes, Folding and Display Cartons

GAUGES, PAPER

Cady Co., E. J., Chicago, Ill.
Federal Products Corp., Providence, R. I.
Foreign Paper Mills, Inc., New York, N. Y.
Perkins & Son, Inc., B. F., Holyoke, Mass.
Thwing Instrument Co., Philadelphia, Pa.

GLUES AND PASTES

See Adhesives

GLUE HEATERS AND GLUE POTS

Beckwith Machine Co., Ravenna, O.
Gane Bros. & Lane, Inc., Chicago, Ill.
New Advance Machinery Co., Van Wert, O.
Potdevin Machine Co., Brooklyn, N. Y.

GOLD LEAF

See Roll Leaf

GUMMED TAPE (Cloth)

Artcote Papers, Inc., Irvington, N. J.—Insert 96-97
Central Paper Co., Menasha, Wis.
Chicago Gummed Tape Co., Chicago, Ill.
Crowell Corp., Yorklyn, Del.
Datz & Son, A. S., Philadelphia, Pa.
Gane Bros. & Lane, Inc., Chicago, Ill.
Gummed Products Co., The, Troy, O.
Gummed Tape & Devices Co., New York, N. Y.—144
Holyoke Paper Corp., New York, N. Y.—Insert 118-119
McLaurin-Jones Co., Brookfield, Mass.
Mid-States Gummed Paper Co., Chicago, Ill.
Nashua Gummed & Coated Paper Co., Nashua, N. H.—Insert 252-253
Queen City Paper Co., Cincinnati, O.
Rexford Paper Co., Milwaukee, Wis.
Schulman Co., Louis, New York, N. Y.
Whiting Co., Inc., C. R., Hackensack, N. J.—220
Whiting-Patterson-Supple Co. Inc., New York, N. Y.—265

GUMMED TAPE (Plain, Printed, Colored)

Badger State Paper Co., Milwaukee, Wis.
Bird & Sons, E., Walpole, Mass.
Better Packages, Shelton, Conn.
Central Paper Co., Menasha, Wis.
Chicago Gummed Tape Co., Chicago, Ill.
Crowell Corp., The, Yorklyn, Del.
Datz & Co., A. S., Philadelphia Pa.
Edgewater Paper Co., Menasha Wis.
Ever Ready Label Corp., New York, N. Y
Gane Bros. & Lane, Inc., Chicago, Ill.
Gummed Paper Products Co., Troy, O.
Gummed Tape & Devices Co., New York, N. Y.—144
Holyoke Paper Corp., New York, N. Y.—Insert 118-119
Hudson Bag Co., Brooklyn, N. Y.
Lamboy Label & Wrapper Co., Kalamazoo, Mich.
Matthias Paper Corp., Philadelphia, Pa.—Insert 254-255
McLaurin-Jones Co., Brookfield, Mass.
Metal Specialties Co., Chicago, Ill.
Mid-States Gummed Paper Co., Chicago, Ill.
Moore & Thompson Paper Co., Bellows Falls, Vt.
Nashua Gummed & Coated Paper Co., Nashua, N. H.—Insert 252-253
Rexford Paper Co., Milwaukee, Wis.
Schulman Co., Louis, New York, N. Y.
Standard Paper Co., Bellows Falls, Vt.
Tanglefoot Co., Grand Rapids, Mich.
Unique Printed Products Co., Terre Haute, Ind.
Union Gummed Products Co., Brooklyn, N. Y.
Western Waxed Paper Co., North Portland, Ore.
Wortendyke Mfg. Co., Richmond, Va.

GUMMED TAPE (Transparent Cellulose)

Gummed Tape & Devices Co., New York, N. Y.—144
Minnesota Mining & Manufacturing Co., St. Paul, Minn.

INK, GLASSINE, TRANSPARENT CELLULOSE

Cray-Finne Co., Inc., New York, N. Y.
General Printing Ink Corp., New York, N. Y.
International Printing Ink Corp., New York, N. Y.
Johnson, Inc., C. Eneu, Philadelphia, Pa.
Levey Co., Inc., Frederick H., New York, N. Y.—137-140
Morrill Co., Geo. H., Div. of Gen. Ptg. Ink, New York, N. Y.
Sinclair & Carroll Co., Inc., New York, N. Y.
Sinclair & Valentine, New York, N. Y.
Triangle Ink & Color Co., Inc., Brooklyn, N. Y.
Ullman Co., Sigmund, New York, N. Y.

INK, LITHOGRAPHING AND PRINTING

American Ptg. Ink Co., Div. Gen. Ptg. Ink, New York, N. Y.
California Ptg. Ink Co., San Francisco, Cal.
Coffee & Co., J. E., Union City, N. J.
Cray-Finne Co., Inc., New York, N. Y.
Davids Thaddeus Ink Co., New York, N. Y.
General Printing Ink Corp., New York, N. Y.
Huber, Inc., J. M., New York, N. Y.
International Printing Ink Corp., New York, N. Y.
Johnson, Inc., C., Eneu, Philadelphia, Pa.
Levey Co., Inc., Frederick H., New York, N. Y.—137-140
Mandlik, John E., New York, N. Y.
Morrill Co., Geo. H., Div. of Gen. Ptg. Ink, New York, N. Y.
Peerless Roll Leaf Co., Inc., Union City, N. J.—Insert 146-147, Page 146
Sinclair & Carroll Co., Inc., New York, N. Y.
Sinclair & Valentine, New York, N. Y.
Standard Ptg. Ink Color Co., Inc., Brooklyn, N. Y.
Triangle Ink & Color Co., Brooklyn, N. Y.
Ullman Co., Sigmund, New York, N. Y.

INK, STENCILING

Binney & Smith, New York, N. Y.
Bradley Stencil Machine Co., St. Louis, Mo.
Coffee & Co., J. E., Union City, N. J.
Diagraph Stencil Machine Corp., St. Louis, Mo.
Garvey Fountain Brush & Ink Co., St. Louis, Mo.
Marsh Stencil Machine Co., Belleville, Ill.

INSERTS, PACKAGE

See Lithographers

JARS, CELLULOID

Hygienic Tube & Container Co., Newark, N. J.—125
Silcocks Miller Co., S. Orange, N. J.

JARS, GLASS

See Bottles, Glass

JARS, MOLDED

See Boxes, Molded Plastics

JARS, OPAL

Carr-Lowrey Glass Co., Baltimore, Md.
Hazel-Atlas Glass Co., Wheeling, W. Va.
Owens-Illinois Glass Co., Toledo, O.—126-127
Ruth Glass Co., New York, N. Y.
Wheaton, T. C., Millville, N. J.
Whitall Tatum Co., New York, N. Y.

JARS (Packers' Tumblers)

Capstan Glass Co., Connellsville, Pa.
Federal Glass Co., Columbus, O.
General Glass Co., Lancaster, O.
Hazel Atlas Glass Co., Wheeling, West Va.
Owens-Illinois Glass Co., Toledo, O.—126-127

LABELS AND SEALS, FLAT AND EMBOSSED

American Label Co., The, New York, N. Y.
Cameo Die Cutting & Engraving Co., New York, N. Y.—Insert 104-105
Consolidated Lithographing Corp., Brooklyn, N. Y.
Dennison Mfg. Co., Framingham, Mass.
Einson-Freeman Co., Inc., New York, N. Y.—141
Foxon Co., The, Providence, R. I.—143
Grand Rapids Label Co., Grand Rapids, Mich.
Holyoke Paper Corp., New York, N. Y.—Insert 118-119
Howell & Co., F. M., Elmira, N. Y.
Illinois Carton & Label Co., Chicago, Ill.
Kaumagraph Co., New York, N. Y.—Insert 220-221
Kehlmann Co., L., New York, N. Y.
Kirby-Cogeshall Co., Milwaukee, Wis.

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Lambooy Label & Wrapper Co., Kalamazoo, Mich.
Little Co., John W., Pawtucket, R. I.—172
Manz Corp., Chicago, Ill.
May Co., J. L., New York, N. Y.
Muirson Label & Carton Co., Brooklyn, N. Y.
Nashua Gummed & Coated Paper Co., Nashua, N. Y.—Insert 252-253
National Art Co., New York, N. Y.
Paris Art Label Co., New York, N. Y.
Reynolds Metals Co., Inc., New York, N. Y.
Robinson Tag & Label Co., New York, N. Y.
St. Louis Stitcher Co., St. Louis, Mo.
Shuman Co., Frank G., Chicago, Ill.
Stanley Mfg. Co., The, Dayton, O.
Tablet & Ticket Co., The, Chicago, Ill.
Unique Printed Products Co., Inc., Terre Haute, Ind.
United States Printing & Litho. Corp., Cincinnati, O.—262
Wheeler-Van Label Co., Grand Rapids, Mich.
Whitney Tag Co. Inc., New York, N. Y.
Wood, Nathan & Virkus Co., New York, N. Y.—Insert—266-267

LABELS, MAILING AND SHIPPING

Bartlett Label Co., Kalamazoo, Mich.
Cameo Die Cutting & Engraving Co., New York, N. Y.—Insert 104-105
Dennison Mfg. Co., Framingham, Mass.
Ever Ready Label Corp., New York, N. Y.
Fenton Label Co., Philadelphia, Pa.
Gamse & Bros., Inc., H., Baltimore, Md.
Horn, John, New York, N. Y.
Kalamazoo Label Co., Kalamazoo, Mich.
Lambooy Label & Wrapper Co., Kalamazoo, Mich.
May Co., The, J. L., New York, N. Y.
Milwaukee Label & Seal Co., Milwaukee, Wis.
Rexford Paper Co., Milwaukee, Wis.
St. Louis Sticker Co., St. Louis, Mo.
Salisbury Mfg. Co., Providence, R. I.
Shuman Co., Frank G., The, Chicago, Ill.
Smelzer & Co., Quentin R., Williamsville, N. Y.
Tablet & Ticket Co., The, Chicago, Ill.
Unique Printed Products Co., Inc., Terre Haute, Ind.
Waddill Printing & Litho. Co., Danville, Va.
Wheeler-Van Label Co., Grand Rapids, Mich.
Whitney Tag Co., Inc., New York, N. Y.

LABELS, METAL

Cameo Die Cutting & Engraving Co., New York, N. Y.—Insert 104-105
Foxon Co., Providence, R. I.—143
Krause, Inc., Richard M., New York, N. Y.—177
Stanley Mfg. Co., Dayton, O.

LABELS, LITHOGRAPHING

See Lithographers

LACE PAPER

American Lace Paper Co., Milwaukee, Wis.
Marathon Paper Mills Co., Rothschild, Wis.
Milwaukee Lace Paper Co., Milwaukee, Wis.
U. S. Lace Paper Works, Brooklyn, N. Y.

LEATHER (Imitation)

Carpenter & Co., Inc., L. M., Newark, N. J.
Dupont Fabrikoid Co., Newburgh, N. Y.
Griffin & Sons Co., H., New York
Holliston Mills, Inc., The, Norwood, Mass.
Keratol Co., The, Newark, N. J.—171
Peerless Roll Leaf Co., Inc., New York, N. Y.—Insert 146-147, Page 146
Permatex Fabric Co., The, Jewett City, Conn.
Premoid Co., Springfield, Mass.
Whiting Co., Inc., C. R., Newark, N. J.—220
Whiting-Patterson-Supple Co., Inc., New York, N. Y.—265
Zapon Co., Hartford, Conn.

LINERS (Box, Barrel and Bag)

Angier Corp., Framingham, Mass.
Arkell Safety Bag Co., New York, N. Y.
Bemis Bros. Bag Co., St. Louis, Mo.
Container Corp. of America, Chicago, Ill.—124
Edgewater Paper Co., Menasha, Wis.
Fort Orange Paper Co., Castleton-on-Hudson, N. Y.—183-184
International Paper Co., New York, N. Y.
Kimberly-Clark Corp., Chicago, Ill.—196-197
Paper Service Co., The, Lockland, O.
Paterson Parchment Paper Co., Passaic, N. J.—176
Rexford Paper Co., Milwaukee, Wis.
Reynolds Metals Co., Inc., New York, Y. N.
River Raisin Paper Co., Monroe, Mich.
Safepack Mills, Millis, Mass.
Union Bag & Paper Co., New York, N. Y.—266

LINERS, CAP

Anchor Cap & Closure Co., Long Island City, N. Y.
Armstrong Cork Co., Lancaster, Pa.—103
Bond Mfg. Corp., Wilmington, Del.—108
General Felt Products, Inc., Brooklyn, N. Y.
Irvington Varnish & Insulator Co., Irvington, N. J.
Phoenix-Hermetic Co., Chicago, Ill.
Standards Insulation Co., East Rutherford, N. J.

LINERS, WAXED

See Waxed Paper

LITHOGRAPHERS

American Colortype Co., New York, N. Y.
Art Gravure Corp., New York, N. Y.
Atlantic Litho. & Ptg. Co., New York, N. Y.
Brett Litho. Co., Long Island City, N. Y.
Brooks Bank Note Co., Springfield, Mass.
Brooks and Porter, Inc., New York, N. Y.—188
Brown & Bigelow, Inc., St. Paul, Minn.
Carlisle & Co., A., San Francisco, Cal.
Central Lithograph Co., The, Cleveland, O.
Consolidated Lithographing Corp., Brooklyn, N. Y.
Donaldson Litho. Co., Newport, Ky.
Edwards & Deutsch Litho. Co., Chicago, Ill.
Einson-Freeman Co., Inc., Long Island City, N. Y.—141
Erie Litho. & Ptg. Co., Erie, Pa.
Fairchild Corp., E. E., Rochester, N. Y.
Federal Litho Co., Detroit, Mich.
Forbes Litho. Mfg. Co., Boston, Mass.—151-155
Genesee Valley Litho. Co., Rochester, N. Y.
Gerlach-Barklow Co., Joliet, Ill.
Goes Litho. Co., Chicago, Ill.
Gugler Litho. Co., Milwaukee, Wis.
Harris-Drew Co., New York, N. Y.
Henderson Litho. Co., Cincinnati, O.
Heywood Co., Inc., R. R., New York, N. Y.—Insert 116-117
Holyoke Paper Corp., New York, N. Y.—Insert 118-119
Karle Litho. Co., Rochester, N. Y.
Kaumagraph Co., New York, N. Y.—Insert 220-221
Magill-Weinsheimer Co., Chicago, Ill.
McCandlish Litho. Corp., Philadelphia, Pa.
McKey Humphreys Litho. Co., Boston, Mass.
Meyercord Co., Chicago, Ill.
Milprint Products Corp., Milwaukee, Wis.—Insert 256-257
Munro & Harford Co., New York, N. Y.
National Art Co., New York, N. Y.
National Prtg. & Engr. Co., Chicago, Ill.
Northwestern Litho. Co., Milwaukee, Wis.
Oberly & Newell, New York, N. Y.
Powers Co., W. F., New York, N. Y.
Premier Litho. Co., Chicago, Ill.
Regensteiner Corp., Chicago, Ill.
Rochester Folding Box Co., Rochester, N. Y.
Rochester Litho. Co., Rochester, N. Y.
Rode & Brand, Inc., New York, N. Y.
Sale Litho. Co., Buffalo, N. Y.
Schmidt Litho. Co., Theo. A., Chicago, Ill.
Schmidt Litho. Co., San Francisco, Cal.
Schmitt & Co., Ing., Geo., Brooklyn, N. Y.
Schultz Litho. Co., A. C., Milwaukee, Wis.
Snyder & Black, Inc., New York, N. Y.
Standard Ptg. Co., Louisville, Ky.
Stecher Litho. Co., Rochester, N. Y.
Strobridge Litho. Co., Cincinnati, O.
Stubbs Co., The, Detroit, Mich.
Traung Label & Litho Co., San Francisco, Cal.
Trautmann, Bailey & Blampey, New York, N. Y.
U. S. Ptg. & Litho. Co., Cincinnati, O.—262
Waddill Printing & Litho. Co., Danville, Va.
Walker Litho. & Pub. Co., Boston, Mass.

LITHOGRAPHERS, METAL

Acme Metal Decorating Co., Brooklyn, N. Y.
American Can Co., New York, N. Y.
Burdick & Son, Inc., Albany, N. Y.—182
Clark Mfg. Co., J. L., Rockford, Ill.
Continental Can Co., New York, N. Y.—Insert 110-111
Heekin Can Co., Cincinnati, O.
Metal Package Corp., New York, N. Y.—173
Phoenix Hermetic Co., Chicago, Ill.
Robertson Steel & Iron Co., W. F., Springfield, O.
Tin Decorating Co. of Baltimore, The, Baltimore, Md.—254

MACHINES, AUTOMATIC WEIGHING, DRY FILLING

American Machine & Foundry Co., Brooklyn N. Y.
Arenco Machine Co., New York, N. Y.—104
Automat Molding & Folding Co., The, Toledo, O.—106-107
Betner Co., Ben. C., Devon, Pa.
Brown Bag Filling Machine Co., Fitchburg, Mass.—110
Cartoning Machinery Corp., Newport, R. I.
Consolidated Packaging Machinery Co., Buffalo, N. Y.—187
Ferguson Co., J. L., Joliet, Ill.
Goat Co., Inc., The Fred, Brooklyn, N. Y.—145
Gump Co., B. F., Chicago, Ill.
Johnson Automatic Sealer Co., Ltd., Battle Creek, Mich.
Lehmann Co., Inc., J. M., New York, N. Y.
Packaging Machinery Co., Yonkers, N. Y.
Pneumatic Scale Corp., Ltd., Norfolk Downs, Mass.—202-203, 221-252
Redington Co., F. B., Chicago, Ill.
Scale & Machinery, Inc., New York, N. Y.
Stokes Machine Co., F. J., Philadelphia, Pa.—253
Stokes & Smith Co., Philadelphia, Pa.—209-214
Tanzi & Bros., Inc., Mario, Boston, Mass.
Triangle Package Machinery Co., Chicago, Ill.

MACHINES, BAG FILLING AND SEALING

Acme Staple Co., Camden, N. J.—98-99
American Steel Chase Co., Inc., New York, N. Y.—100
Automat Molding & Folding Co., The, Toledo, O.—106-107
Bostitch Sales Co., New York, N. Y.—113-116
Brown Bag Filling Machine Co., Fitchburg, Mass.—110
Cartoning Machinery Corp., Newport, R. I.
Consolidated Packaging Machinery Corp., Buffalo, N. Y.—187
Ferguson Co., J. L., Joliet, Ill.
Goat Machine Co., Inc., The Fred, Brooklyn, N. Y.—145
Gump Co., B. F., Chicago, Ill.
Johnson Automatic Sealer Co., Ltd., Battle Creek, Mich.
Lehmann Co., Inc., J. M., New York, N. Y.
Package Machinery Co., Springfield, Mass.—194-195
Saranac Bag Sealers, Inc., Benton Harbor, Mich.—215
Stokes & Smith Co., Philadelphia, Pa.—209-214

MACHINES, BASKET MAKING

Saranac Machine Co., Benton Harbor, Mich.—215

MACHINES, BOTTLE CAPPING AND SEALING

Aluminum Co. of America, Pittsburgh, Pa.
Anchor Cap & Closure Corp., Long Island City, N. Y.
Consolidated Packaging Machinery Co., Buffalo, N. Y.—187
Crown Cork & Seal Co., Baltimore, Md.—158-159
Elgin Mfg. Co., Elgin, Ill.
Horix Manufacturing Corp., Pittsburgh, Pa.—148
Kiefer Machine Co., The, Karl, Cincinnati, O.
Liquid Carbonic Corp., The, Chicago, Ill.—170
Owens-Illinois Glass Co., Toledo, O.—126-127
Pneumatic Scale Corp., Ltd., Norfolk Downs, Mass.—202-203, 221-252
Stokes & Smith Co., Philadelphia, Pa.—209-214
U. S. Bottlers Machinery Corp., Chicago, Ill.
Williams Sealing Corp., Decatur, Ill.

MACHINES, BOTTLE CORKING

Ermold Co., Edward, New York, N. Y.—142
Kiefer Machine Co., The Karl, Cincinnati, O.
McDonald Engineering Corp., Brooklyn, N. Y.—174-175
Pneumatic Scale Corp., Ltd., Norfolk Downs, Quincy, Mass.—202-203, 221-252
U. S. Bottlers' Machinery Co., Chicago, Ill.

MACHINES, BOTTLE FILLING

Colton Company, Arthur, Detroit, Mich.—121
Crown Cork & Seal Co., Baltimore, Md.—158-159
Elgin Mfg. Co., Elgin, Ill.
Filler Machine Co., Inc. .Philadelphia, Pa.
Horix Mfg. Corp., Pittsburgh, Pa.—148
Ivers-Lee Co., Newark, N. J.—166
Kiefer Machine Co., The, Karl, Cincinnati, O.
National Acme Co., Cleveland, O.

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Sprague-Sells Corp., Chicago, Ill.
Stokes Machine Co., F. J., Philadelphia, Pa.—253
Stokes & Smith Co., Philadelphia, Pa.—209-214
U. S. Bottlers' Machinery Co., Chicago, Ill.

MACHINES, BOTTLE WASHING

Crown Cork & Seal Co., Baltimore, Md.—158-159
Kiefer Machine Co., The Karl, Cincinnati, O.
Liquid Carbonic Corp., The, Chicago, Ill.—170
Owens-Illinois Glass Co., Toledo, O.—126-127
Stokes Machine Co., F. J., Philadelphia, Pa.—253
U. S. Bottlers' Machinery Co., Chicago, Ill.

MACHINES, BOX PACKING

Burt Machine Co., Baltimore, Md.—111
Ferguson Co., J. L., Joliet, Ill.
Standard-Knapp Corp., Long Island City, N. Y.

MACHINES, BOX PRINTING

Chambou Corporation, Union City, N. J.
Hooper Co., F. X., Glenarm, Md.
Knowlton Co., M. D., Rochester, N. Y.
Langston Co., Samuel M., Camden, N. J.
Morgan Machine Co., Inc., Rochester, N. Y.
New Jersey Machine Corp., Hoboken, N. J.
Thomson National Press Co., Franklin, Mass.

MACHINES, BOX STRAPPING

Acme Steel Co., Chicago, Ill.—96
Gerrard Co., Inc., The, Chicago, Ill.
Signode Steel Strapping Co., Chicago, Ill.
Stanley Works, New Britain, Conn.
Tennant & Sons, C., New York, N. Y.

MACHINES, BOX WINDOW MAKING

International Paper Box Machine Co., Nashua, N. H.
Staude Manufacturing Co., E. G., St. Paul, Minn.

MACHINES, BUNDLE TYING (Twine)

American Steel Chase Co., Inc., New York, N. Y.—100
Bunn Co., B. H., Chicago, Ill.
International Paper Box Machine Co., Nashua, N. H.
National Bundle Tyer Co., Blissfield, Mich.

MACHINES, BUTTER, PRINT

Automat Molding & Folding Co., The, Toledo, O.—106-107
Pneumatic Scale Corp., Ltd., Norfolk Downs, Mass.—202-203, 221-252
Redington Co., F. B., Chicago, Ill.

MACHINES, BUNDLE TYING (Wire)

Acme Steel Co., Chicago, Ill.—96
American Steel Chase Co., Inc., New York, N. Y.—100
Gerrard Co., Inc., Chicago, Ill.
Signode Steel Strapping Co., Chicago, Ill.
Stanley Works, New Britain, Conn.
Tennant & Sons, C., New York, N. Y.

MACHINES, CAN CAPPING

Aluminum Co. of America, Pittsburgh, Pa.
American Can Co., New York, N. Y.
Anchor Cap & Closure Corp., Long Island City, N. Y.
Consolidated Packaging Machinery Corp., Buffalo, N. Y.—187
Continental Can Co., New York, N. Y.—Insert 110-111
Crown Cork & Seal Co., Inc., Baltimore, Md.—158-159
Elgin Mfg. Co., Elgin Ill.
Ferguson Co., J. L., Joliet, Ill.
Kiefer Machine Co., The Karl, Cincinnati, O.
Phoenix-Hermetic Co., Chicago, Ill.
Pneumatic Scale Corp., Ltd., Norfolk Downs, Mass.—202-203, 221-252
U. S. Bottlers' Machinery Co., Chicago, Ill.
Williams Sealing Corp., Decatur, Ill.

MACHINES, CAN CASING

Burt Machine Co., Baltimore, Md.—111
Ferguson Co., J. L., Joliet, Ill.
Standard-Knapp Corp., Long Island City, N. Y.

MACHINES, CAN CLOSING AND SEALING

American Can Co., New York, N. Y.
Consolidated Packaging Machinery Corp., Buffalo, N. Y.—187
Continental Can Co., New York, N. Y.—Insert 110-111
Ferguson Co., J. L., Joliet, Ill.
Kiefer Machine Co., The Karl, Cincinnati, O.
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R. C. Can Co., St. Louis, Mo.—201
U. S. Bottlers' Machinery Co., Chicago, Ill.
Williams Sealing Corp., Decatur, Ill.

MACHINES, CAN FILLING

Colton Co., Arthur, Detroit, Mich.—121
Elgin Mfg. Co., Elgin, Ill.
Ferguson Co., J. L., Joliet, Ill.
Filler Machine Co., Inc., Philadelphia, Pa.
Horix Manufacturing Corp., Pittsburgh, Pa.—148
Kiefer Machine Co., The Karl, Cincinnati, O.
Lehman Co., Inc., J. W., New York, N. Y.
National Acme Co., Cleveland, O.
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Scale & Machinery, New York, N. Y.
Sprague-Sells Corp., Chicago, Ill.
Stokes Machine Co., F. J., Philadelphia, Pa.—253
Stokes & Smith Co., Philadelphia, Pa.—209-214
Triangle Packaging Machinery Co., Chicago, Ill.
U. S. Bottlers' Machinery Co., Chicago, Ill.

MACHINES, CARDING AND DISPLAY

Acme Staple Co., Camden, N. J.—98-99
Bostitch Sales Co., E. Greenwich, R. I.—113-116

MACHINES, CARTON LOADING

Acme Staple Co., Camden, N. J.—98-99
Automat Molding & Folding Co., The, Toledo, O.—106-107
Cartoning Machinery Corp., Newport, R. I.
Ferguson Co., J. L., Joliet, Ill.
Goat Machine Co., Inc., The Fred, Brooklyn, N.Y.—145
Johnson Automatic Sealer Co., Ltd., Battle Creek, Mich.
Jones & Co., R. A., Covington, Ky.
Peters Machinery Co., Chicago, Ill.—268
Pneumatic Scale Corp., Ltd., Norfolk Downs, Mass.—202-203, 221-252
Redington Co., F. B., Chicago, Ill.
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MACHINES, CARTON AND PAPER BOX MAKING

Acme Staple Co., Camden, N. J.—98-99
Bliss Co., Inc., H. R., Niagara Falls, N. Y.—129-136
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Ferguson Co., J. L., Joliet, Ill.
General Food Package Equipment Co., Benton Harbor, Mich.—215
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Inman Manufacturing Co., Amsterdam, N. Y.
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Pneumatic Scale Corp., Ltd., Norfolk Downs, Mass.—202-203, 221-252
Saranac Machine Co., Benton Harbor, Mich.—215
Self-Locking Machinery Co., Chicago, Ill.
Staude Manufacturing Co., E. G., St. Paul, Minn.
Stokes & Smith Co., Phila., Pa.—209-214
U. S. Automatic Box Machinery Co., Boston, Mass.

MACHINES, CARTON FORMING, LINING, FOLDING, CLOSING

Automat Molding & Folding Co., Toledo, O.—106-107
Consolidated Packaging Machinery Corp., Buffalo, N. Y.—187
Ferguson Co., J. L., Joliet, Ill.
Goat Machine Co., Inc., The Fred, Brooklyn, N. Y.—145
Johnson Automatic Sealer Co., Ltd., Battle Creek, Mich.
Lehmann Co., Inc., J. M., New York, N. Y.
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Pneumatic Scale Corp., Norfolk Downs, Mass.—202-203, 221-252
Redington Co., F. B., Chicago, Ill.
Stokes & Smith Co., Philadelphia, Pa.—209-214

MACHINES, COLLAPSIBLE TUBE FILLING

Colton Co., Arthur, Detroit, Mich.—121
Kiefer Machine Co., The Karl, Cincinnati, O.
Stokes Machine Co., F. J., Philadelphia, Pa.—253
Wirz, Inc., A. H., Chester, Pa.—185-186

MACHINES, CONTAINER SEALING (Adhesive)

American Steel Chase Co., Inc., New York, N. Y.—100
Bliss Co., Inc., H. R., Niagara Falls, N. Y.—129-136
Burt Machine Co., Baltimore, Md.—111
Ferguson Co., J. L., Joliet, Ill.
Johnson Automatic Sealer Co., Ltd., Battle Creek, Mich.
Standard-Knapp Corp., Long Island City, N. Y.

MACHINES, CONTAINER SEALING (Gummed Tape)

American Steel Chase Co., Inc., New York, N. Y.—100
Better Packages, Inc., Shelton, Conn.
Container Machinery Corp., New York, N. Y.
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Holyoke Paper Corp., New York, N. Y.—Insert 118-119
Link Co., L., New York, N. Y.
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Bostitch Sales Co., E. Greenwich, R. I.—113-116
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Latham Machinery Co., Chicago, Ill.—161-164
Morrison Co., J. L., Niagara Falls, N. Y.
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Durant Mfg. Co., Milwaukee, Wis.
Redington Co., F. B., Chicago, Ill.
Stokes Machine Co., F. J., Philadelphia, Pa.—253
Veeder-Root Co., Hartford, Conn.

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Burt Machine Co., Baltimore, Md.—111
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Ferguson Co., J. L., Joliet, Ill.
Grammes & Sons, Inc., L. F., Allentown, Pa.
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Pneumatic Scale Corp., Ltd., Norfolk Downs, Mass.—202-203, 221-252
Potdevin Machinery Co., Brooklyn, N. Y.
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Standard-Knapp Corp., Long Island City, N. Y.
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MACHINES, LIQUID FILLING

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Hassinger, D. B., New York, N. Y.
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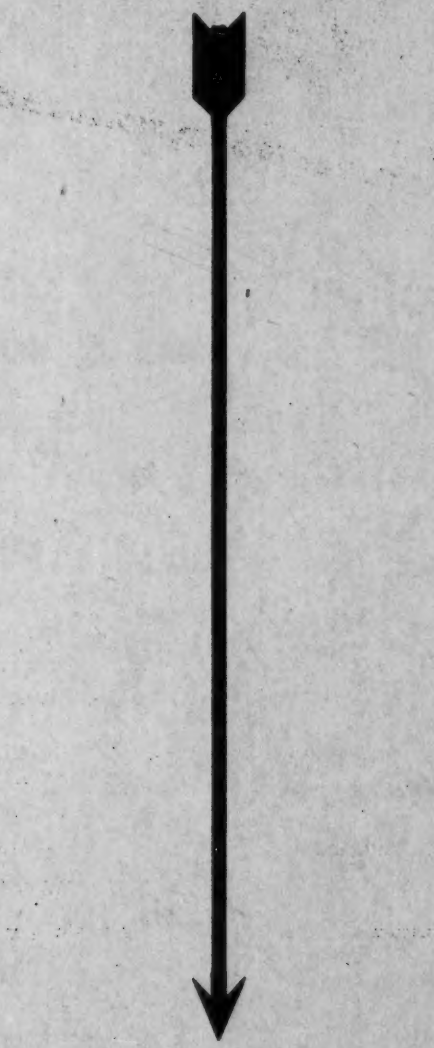

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Howe Scale Co., Rutland, Vt.
International Business Machines Corp., New York, N. Y.
Jacobs Bros. Co., Brooklyn, N. Y.
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WRAPPERS, FOIL

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WRAPPERS, PRINTED GLASSINE

American Tissue Mills, Holyoke, Mass.
Bendix Paper Co., New York, N. Y.
Bennington Wax Paper Co., Bennington, Vt.
Central Waxed Paper Co., Chicago, Ill.
Deerfield Glassine Co., Monroe Bridge, Mass.
Hamersley Mfg. Co., Garfield, N. J.
Hartford City Paper Co., Hartford City, Ind.
Henle Wax Paper Mfg. Co., Inc., The, New York, N. Y.
Holyoke Paper Corp., New York, N. Y.—Insert 118–19
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Liebs Co., L. A., New York, N. Y.
Lord Baltimore Press, Baltimore, Md.
Menasha Products Co., Menasha, Wis.
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Nashua Gummed & Coated Paper Co., Nashua, N. H.—Insert 252–253
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Package Paper Co., Holyoke, Mass.
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WRAPPERS, WAXED PAPER AND PARCHMENT

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Central Waxed Paper Co., Chicago, Ill.
Coated Paper Products Co., Minerva, O.
Continental Paper & Bag Corp., New York, N. Y.
Hamersley Mfg. Co., Garfield, N. J.
Henle Wax Paper Mfg. Co., Inc., New York, N. Y.
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Menasha Products Co., Menasha, Wis.
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Ohio Wax Paper Co., Columbus, O.
Otsego Waxed Paper Co., Otsego, Mich.
Package Paper Co., Holyoke, Mass.
Paterson Parchment Paper Co., Passaic, N. J.—176
Riegel Paper Corp., New York, N. Y.—Insert 164–165
Robertson Paper Co., Inc., Bellows Falls, Vt.
Shamut Waxed Paper Co., Holliston, Mass.
Waterproof Paper & Board Co., Cincinnati, O.
West Carrollton Parchment Co., West Carrollton, O.

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